AUTHOR INDEX

Aakerblom, L. 129
Abbruzzese, J. 55
Abdel-Latif, A. A. 301
Abe, Y. 100
Abonyi, M. 39–59
Ackerman, P. 117
Adelstein, D. 235
Adler, P. N. 282
Agarwal, K. C. 138
Agostinis, P. 143–155
Agranoff, B. W. 301
Ahn, J. Y. 175
Ahn, N. G. 145, 146, 148
Akerman, M. 129
Åkesson Johansson, A. 28, 29, 32
Akhtar, R. A. 301
Aki, M. 173, 174, 176
Akiyama, Y. 235
Albert, J. 27–36
Alberti, D. B. 235
Aletras, O. 235
Alexander, J. E. 207, 213
Alexander, L. 61
Alexson, S. E. H. 190
Allison, J. H. 302, 304
Altschul, S. F. 257
Altschuler, E. 118, 119
Ambühl, P. M. 272
Anderson, K. S. 282
Anderson, M. E. 284
Anderson, M. J. 267
Anderson, N. G. 144, 146
Anderson, T. T. 209
Andoh, T. 173–180
Andrews, P. A. 3
Andronik-Lion, V. 138
Angel, P. 166
Anger, K. R. 150
Angielski, S. 236
Antonopoulos, A. 235
Antonucci, A. 166
Aoki, T. 40
Aoyama, A. 267
Apra, P. 123
Aragon, J. J. 102, 103
Aran, J. M. 236, 240, 248
Arceci, R. 113
Argiles, J. M. 102
Arner, E. S. 46, 66
Ascherman, D. 268
Ashcraft, E. 61, 62, 63
Atlas, D. 268
Attia, J. 222
August, J. T. 103
Averett, D. R. 28, 32
Avila, M. 104
Avruch, J. 146
Azcon-Bieto, J. 102

Baas, F. 113
Babia, T. 104
Bach, M. 27
Bachur, N. R. 3, 13
Bacon, P. E. 129, 137, 138
Bacoyannis, C. 235
Baer, H. P. 236
Baldwin, S. A. 248
Balinska, M. 210
Ball, H. A. 181, 184, 190
Ballin, M. 268
Ban, J. 39, 43–46, 54–56
Banath, J. 121
Banfic, H. 157, 158, 161, 165
Bannai, S. 284, 285
Bansal, V. S. 163
Barbacid, M. 267
Barcellos-Hoff, M. H. 277
Barker, C. J. 299
Barker, P. J. 158
Barnabei, O. 157–169
Barrueco, J. R. 212
Barry, D. W. 27
Barshop, B. 255
Barth, P. 198, 204
Bartrons, R. 102, 104
Bartus, H. 117
Basdanis, G. 235
Baselga, J. 235
Basset, M. 148
Bassin, R. H. 267, 272
Bassols, A. 104
Basu, A. K. 13
Bates, D. J. 221, 232
Batzinger, R. P. 282–284
Baudon, M. A. 72, 81
Bauer, K. 114, 115
Bauer, L. 235
Baulida, J. 104

Baumert, T. 181, 186
Baxter, D. F. 284
Bay, Y. S. 147
Bazer, F. W. 212
Beacham, L. M. 61
Beatty, Y. F. 143, 151
Beck, W. T. 113–127
Bednarek, J. M. 212
Beggs, M. 256, 261
Beldecos, D. 235
Bell, S. P. 65
Belt, J. A. 235–252
Benade, L. 267
Bend, J. R. 284
Benditt, J. O. 166
Bennet, C. E. 158
Bennett Jr, L. L. 236
Bensimon, A. 290, 291
Benson, A. M. 282–284
Bentley, D. L. 63
Beran, M. 114, 118
Berberich, S. J. 147
Berg, P. 129
Bergelson, S. 290, 291
Berger, N. 123
Berggren, P. O. 166
Bergoltz, V. 123
Berne, R. M. 232
Bernengo, M. G. 46
Berridge, M. J. 299, 301, 303
Berrios, M. 117
Berry, M. N. 184
Bertagnolo, V. 158, 166, 167
Bertfield, H. 104, 105
Bertino, J. R. 207
Besterman, J. 117
Betcher, S. L. 236
Bethel, M. 212
Biellmann, J. F. 198, 204
Biemann, H. P. N. 149
Bigner, D. D. 19, 24
Birch, C. 27
Birnbaumer, L. 150
Bissell, M. J. 277
Bittner, G. 235
Björkhem, I. 190
Blanchard, J. M. 148
Blank, J. L. 165, 166
Blick, M. 114
Bloom, S. R. 89
Blumberg, P. M. 103
Boder, G. B. 54
Bohman, C. 39, 46, 61, 66
Bohr, V. 116
Bohren, K. M. 198, 204
Bollen, M. 83
Bolognesi, D. 27
Bolton, M. G. 21
Boonstra, J. 167
Border, G. L. 202
Borensztajn, J. 81
Bornstein, P. 274, 277
Borst, P. 113
Borthwick, A. C. 85
Bosca, L. 102–106
Bosch, F. 104
Boucher, J. L. 138
Boulton, T. G. 144–146
Bover, L. 235
Boyce, R. 116
Boyett, J. 235
Boyle, W. J. 166
Branlant, G. 198
Bregman, H. S. 285
Brent, T. P. 46
Breton, M. 167
Brett, C. M. 236, 247, 248
Brewster, G. 301
Briggs, M. R. 65
Broadhurst, K. 30
Broder, S. 27
Brooks, S. F. 149
Brouwer-Kelder, E. M. 210
Brown, A. B. 165, 166
Brown, D. 123
Brown, K. D. 150, 165
Brown, K. O. 165
Brown, P. 117
Broxterman, H. 113
Brugge, J. S. 146
Bruggink, J. 235
Brunatti, A. M. 147
Brundrett, R. B. 19, 22, 23
Bruni, P. 103, 104
Buckery, R. M. 63
Buckman, J. E. 232
Budd, G. T. 235
Bueding, E. 282–284
Bugg, B. 114, 115, 118, 119
Buhi, W. C. 212
Bukowski, R. 235
Bullock, N. 19, 24
Burnol, A. F. 72, 78, 81
Burns, C. L. 28, 32
Busbee, D. 166
Bustos, R. 104
Butler, A. L. 21
Byington, R. 33
Byl, J. A. 236, 247

Cabral, S. 235
Calcutt, G. 19

Campbell, D. G. 77, 146
Cantley, L. C. 150
Capitani, S. 157–169
Capizzi, R. L. 61
Capony, F. 212
Caras, I. W. 129
Cardenas, M. 117
Carini, C. 167
Carling, D. 76, 77, 85
Carmichael, J. 130
Carney, D. N. 143
Carozzi, A. 150
Carpenter, B. 165, 166
Carpenter, C. A. 79, 150
Carpenter, G. 165
Carrol, D. 147
Carter, G. L. 39, 129, 137, 138
Carter, S. G. 267
Cascales, M. 102, 104
Casper, E. S. 235
Cass, C. E. 235, 238, 243, 248
Castano, J. G. 173
Casteels, M. 190
Castro, V. M. 21
Caterson, I. D. 72
Cauldwell, F. B. 75
Cavadore, J. C. 148
Cerami, A. 104
Cha, Y. N. 282–284
Chabner, B. A. 19
Challiss, R. A. J. 303, 305, 310
Chaly, N. 123
Chambon, M. 212
Chan, C. P. 145, 146, 148
Chan, D. 114
Chan, K. V. 207
Chan, T. C. 235
Chan, V. 118
Chang, C. H. 129
Chang, G. G. 202
Chang, K. –J. 117
Chao, M. V. 150
Chatterjee, S. 123
Chatterjie, N. 10
Chaudhuri, G. 138
Chawla, A. K. 11
Chen, E. 61–68
Chen, G. 114
Chen, H. M. 13
Chen, I. S. 61
Chen, M. 113–127
Chenais, B. 138
Cheng, Y. C. 129
Chesebro, B. 27
Chieco-Bianchi, L. 147
Chikri, M. 101
Cho, C. G. 282
Choi, W. C. 163
Chomczynski, P. 269
Chottiner, E. G. 61–63
Chou, T. C. 28, 29, 33
Chowdary, D. 3, 5, 9, 10, 13
Chowdary, R. 10
Chuang, C. T. 260
Chubb, S. 39, 54, 61
Chun, Y. 129, 137
Chung, C. H. 174, 175
Ciaccio, P. J. 21
Ciardiello, F. 267
Ciavola, J. A. 100
Cichowicz, C. J. 207
Cichowicz, D. J. 207
Cifuentes, M. E. 103
Cirillo, D. 150, 151
Cirtain, M. 113–116
Clapper, M. L. 21
Clarkson, T. W. 288
Claus, T. H. 97, 98, 99
Cleary, S. 235
Clermont, Y. 161
Clevenger, C. 114, 115
Cobb, M. H. 144–146
Cocco, L. 157–169
Cockcroft, S. 166
Cohen, P. 73, 75, 83, 84, 146
Coldberg-Poley, A. M. 63
Cole, M. D. 147
Colman, P. D. 207
Colomer, D. 102, 104
Colosia, A. D. 100
Colvin, B. 30
Colvin, O. M. 19–26
Comoglio, P. M. 150, 151
Conners, T. A. 19
Conroy, D. M. 181, 191
Contente, S. 268, 276, 277
Contreras, M. L. 164
Cook, J. D. 207
Cooper, D. 27
Cooper, D. M. F. 235
Cooper, H. 267
Cooper, J. A. 144
Coppack, S. W. 261
Corbett, A. 117
Cori, C. F. 161
Corjay, M. H. 143, 151
Corps, A. N. 158, 165, 166
Cory, A. H. 129–140
Cory, J. G. 39, 129–140, 282, 284
Cosby, L. A. 3
Costi, A. 224, 225, 228, 229
Coves, J. 138
Covey, J. 123
Covey, J. M. 13

Coward, J. K. 207, 210, 211, 213
Cox, R. P. 260
Cox, S. W. 27–36
Cozzarelli, N. 117
Crabb, D. W. 255–265
Craig, R. W. 267
Craik, J. D. 248
Crawford, C. R. 235–252
Creba, J. A. 301
Crepin, K. M. 100, 105, 101, 102
Croce, C. 114, 117
Cromlish, J. A. 198
Cronshaw, A. D. 282
Crooke, S. 117
Crooke, S. T. 158
Crossley, I. 146
Cuatrecasas, P. 117
Curnish, R. R. 232
Curran, T. 103
Curtin, G. 166
Cuttitta, F. 143
Czech, M. P. 147

D'Alessandro, A. 103, 104
D'Angelo, G. 100
D'Aquila, R. 33
D'Arcangelo, G. 146
Dagnino, L. 236, 244
Dahlén, S. E. 181
Dang, Q. 117
Daniel, V. 290, 291
Danks, M. K. 113–127
Darby, G. 27, 30
Darby, M. 123
Darnowski, J. W. 236, 240
Darville, M. I. 100–102, 105
Datta, N. S. 61–63
Daviaud, D. 104
Davidson, D. 150
Davies, A. 248
Davies, S. A. 146
Davies, S. L. 116
Davies, S. M. 116
Davies, S. P. 76, 77, 85
Davis, E. J. 255, 256
Davis, R. J. 145
Davison, A. J. 61
Dawson, R. M. C. 300
Dayton, J. S. 61–68
De Cloedt, M. 100
De Graan, P. N. 300
De Long, M. J. 282, 284–287
De Miguel, C. 104
De Vore, R. 117
De Witte, P. 144, 146–148
DeAngelis, R. 199
Defize, L. H. K. 166
Degraff, W. G. 130
Deisseroth, K. 118, 119
Delaforge, M. 138
Demarco, M. 146
Deneka, D. 116
Deneke, S. M. 284
Denel, T. F. 149
Denis, C. 102, 103
Denis-Pouxviel, C. 104
Denoulet, P. 207, 208, 213
Dent, P. 75
Denton, J. 40
Denton, J. E. 43, 45, 46
Denton, R. M. 85
Denzlinger, C. 181
Depinho, R. A. 144–146
Desbruyeres, E. 207, 208, 213
Destephano, L. 27
Dexter, P. 246
Diamond, I. 103
Dias, J. A. 207–218
Diaz-Guerra, J. M. 104
Dickey, B. F. 166
Diczfalusy, U. 190
DiGiovanna, M. P. 4, 6, 12
Divecha, N. 157, 158, 161, 165
Dixon, J. F. 301, 303–308
Doane-Setzer, P. 21
Dobbins, J. W. 236
Dobson Jr, J. G. 232
Doherty, A. J. 236
Doherty, R. 27
Doig, M. T. 212
Dolan, P. M. 283, 284
Dong, J. M. 212
Donnell, G. N. 260
Doolittle, R. F. 257
Dorman, T. 117
Dornsife, R. E. 28, 32
Doroshow, J. H. 13
Dougherty, J. J. 148
Downes, C. P. 301, 303
Doyle, T. W. 5, 6
Drake, F. 117
Drake, S. 235
Driedger, P. E. 103
Dubach, U. C. 236
Duckworth, B. 150
Ducsay, C. A. 212
Dulik, D. M. 19, 21, 23
Durack, D. 27
Durand, R. 121
Durell, J. 301
Durham III, J. P. 41, 46, 66
Dusre, L. 13

Earhart, R. H. 235
Earnshaw, W. 117
Ebisawa, K. 268
Eble, J. N. 40
Eddé, B. 207, 208, 213
Eder, J. 118
Edgell, N. J. 85
Egner, P. A. 283, 284
Ehrenberg, A. 129
Eibl, R. 119
Eichner, R. D. 210
Eiden, M. V. 277
Eigenbrodt, E. 98
El-Maghrabi, M. R. 97–100
Elford, H. L. 39
Elia, M. 261
Elion, E. A. 146
Elion, G. B. 61
Eliot, H. M. 13
Emrani, J. 53
Epstein, A. 114, 115
Erickson, L. C. 5
Erikson, E. 146
Erikson, R. L. 147, 149
Eriksson, S. 39, 46, 61, 66, 129
Erlichman, C. 235
Eron, J. 33
Erusalimsky, J. D. 149
Espinal, J. 256, 261
Espinet, C. 103
Eustice, D. C. 63
Evans, C. G. 21
Evanson, J. M. 104, 105
Ewig, R. A. 5

Fabbro, D. 147
Faderan, M. A. 54, 235
Fahimi, H. D. 181–184, 186–190, 192
Fahl, W. E. 21
Fain, J. N. 301
Falcieri, E. 158
Falconi, M. 165
Falls, K. 117
Fanburg, B. L. 284
Fanning, M. 27
Farago, A. 299
Fargnoli, J. 269
Farnararo, M. 103, 104
Fatania, H. R. 74, 77, 255
Fauler, J. 183, 189, 190
Fay, F. S. 161
Fedorks, Y. 143
Felber, J. P. 88
Feldman, P. A. 63
Feldman, R. I. 143, 151
Feldmann, M. 104, 105
Felsted, R. 113–115
Feng, D. F. 257
Fenselau, C. 19–26
Fenwick, G. R. 287
Fenyö, E. M. 28
Fernandes, D. 117
Fernandez, A. 148
Ferre, P. 72, 78, 81
Ferris, D. K. 24
Field, J. K. 267
Field, K. G. 308
Fieschi, F. 138
Fincham, H. E. 248
Fink, D. 164
Fink, G. R. 146
Fischer, E. H. 146
Fischer, P. H. 235
Fischer, Y. 103, 104
Fischl, M. 27
Fisher, A. 143
Fister, P. 98, 117
Fitt, P. S. 222, 232
Fitzsimmons, B. 181
Fleischer, A. E. 129
Flessate, D. M. 267
Flygar, M. 46, 66
Flynn, T. G. 197–206
Fochefort, H. 212
Fontecave, M. 138
Foo, S. K. 207
Foret, D. 100
Fornace, A. J. 269
Forrest Jr, J. N. 236
Forsch, R. A. 207
Forster, G. 30
Fossel, E. T. 232
Foster, A. 181
Foster, D. W. 73, 77, 79, 81, 83
Foster, K. A. 165
Fountzilas, G. 235
Fox, I. H. 61–63
Fox, J. G. 129, 137
Fracasso, P. M. 3, 10, 11, 13
Frankfurter, A. 207, 213
Franza, B. R. J. R. 103, 269
Fraser, B. A. 100
Frayn, K. N. 261
Freisheim, J. 207–218
Freiss, G. 212
French, T. J. 79, 86, 87
Friche, E. 114, 115, 119, 122
Friedel, R. O. 301
Friedman, H. S. 19–26
Friedman, R. M. 266–268
Friend, D. S. 184
Friling, R. S. 290, 291

Fritsch, E. F. 63, 115, 257, 269
Fritz, G. 147
Frölich, J. C. 183, 189, 190
Fromm, H. J. 98
Fry, D. W. 207
Fujita, H. 267, 268, 274
Fujita, N. 268
Fukiwara, T. 174, 176
Fukuto, J. M. 138
Fuller, S. J. 72
Fung, C. 257, 260
Furman, P. A. 27
Furuno, N. 176
Futschler, B. 114, 115, 119

Gabbay, K. H. 197, 198, 204
Gal, S. 212
Galanzi, A. 165
Galivan, J. 207–218
Gallo, R. C. 27
Gamcsik, M. P. 19–26
Gandhi, V. 39, 61
Garbisa, S. 212, 268
Garcia, M. 212
Garland, J. T. 301
Garland, P. B. 79, 83
Garland, R. C. 161
Garrels, J. I. 269
Garrity, M. J. 181, 182, 190
Gasser, S. 117
Gaudino, G. 150, 151
Gauthier, T. 104
Gauthier-Rouviere, C. 148
Gazdar, A. F. 130
Gee, M. V. 13
Geiser, A. G. 267
Gelmon, K. 27
Geny, B. 166
George, S. 207
Gerace, L. 166
Gernold, M. 175
Gerson, R. J. 288
Ghiselin, M. T. 308
Ghosh, D. 65
Ghysdael, J. 103, 104, 105
Giacomini, K. M. 236, 247, 248
Giancotti, F. G. 277
Gibbons, G. F. 73
Gibson, N. W. 3
Gibson, R. 256
Gil, J. 151, 152
Gill, J. 27
Gilljam, G. 28, 29
Gilmour, R. S. 157, 158, 165, 166
Ginsburg, D. 61, 62, 63
Giovannoni, S. J. 308
Girard, J. 72, 78, 81
Gish, B. G. 304
Gish, W. 257
Gispen, W. H. 300
Glisson, B. 115
Glotzer, M. 176
Glover, C. J. 3, 117
Glover, G. 117
Glover, J. L. 40
Goa, Q. 27
Goh, B. 30
Golay, A. 88
Goldberg, A. L. 173–175, 261, 262
Goldfarb, R. H. 268
Goldfischer, S. 190
Goldman, I. D. 207
Goldschmidt-Clermont, P. J. 165
Goldstein, I. M. 181
Gomez-Fiox, A. M. 104
Gonzalez, F. A. 145
Good, A. H. 248
Goode, A. W. 87
Goodman, H. M. 291
Goodwin, G. M. 302
Goodwin, G. W. 255, 256
Gordon, S. L. 13
Gottesman, M. M. 212, 268
Gottleib, M. 27
Gould, K. L. 150
Gould, S. J. 150
Goutas, L. J. 211
Gove, C. G. 224
Grabowski, D. 235
Grande, J. 147
Gransen, B. 114, 115, 119, 120, 122
Grantham, B. D. 86
Granzen, B. 114, 115, 119
Graslund, A. 129
Graziani, A. 150
Green, A. 255
Green, M. D. 235
Gregus, Z. 283, 284
Grem, J. L. 235
Gribbin, D. 61, 62, 63
Gribbin, T. 63
Grieco, M. 27
Griegel, S. 267, 269, 271
Griffith, D. A. 236, 248
Griffith, O. W. 19, 24
Grimshaw, C. E. 204
Grindey, G. B. 39, 54, 61
Grisafi, P. L. 146
Groopman, J. 27
Groopman, J. D. 283, 284
Gros, F. 207, 208, 213

Groudine, M. 63
Grunewald, R. 55
Grzeschick, K. H. 272
Gualberto, A. 104
Gueuning, M. A. 103, 104
Guhlmann, A. 181, 186, 190
Guinovart, J. J. 104
Gunkel, N. 30
Gupta, R. 115
Guroff 164
Gust, I. 27
Gustafson, D. L. 3
Gutierrez, M. M. 236

Ha, D. B. 175
Hagedorn, I. 131
Hagmann, W. 181, 190
Hajnal, A. 267–280
Halegoua, S. 146
Hall, A. 21, 146
Hallcher, L. M. 302
Hamill, T. G. 19, 21
Hamilton, R. D. 235
Hammond, J. R. 236
Han, A. C. 256
Handschumacher, R. E. 236, 240, 247
Hanks, S. K. 262
Hanley, M. R. 303
Hanralian, C. J. 13
Hansson, G. 181
Hardie, D. G. 73, 75–77, 85
Hardy, D. L. 224, 225, 228, 229
Harker, W. 114, 115, 117, 119
Harkins, R. 143, 151
Harkrader, R. J. 40–44, 54, 66
Harmenberg, J. 28, 29, 32
Harper, E. H. 236, 247
Harper, T. W. 181, 182, 190
Harris, A. L. 21
Harris, R. A. 255–265
Harrison, P. T. 61
Hashiba, H. 267
Hashimoto, Y. 53
Hata, Y. 39–59
Hatakeyama, M. 150
Havel, R. J. 80, 81
Hawkins, P. T. 301
Hawthorne, J. N. 165, 301
Hay, J. 46
Hayashi, S. 176
Hayes, J. D. 21, 282
Hayeshi, K. 114, 119
Haystead, T. A. J. 146
Heaney, R. K. 287
Heck, M. 117
Hedqvist, P. 181
Hegazy, E. 236
Hegner, D. 235
Heilman, C. A. 268
Heimbrook, D. C. 3, 10, 11
Heine, H. S. 282–284
Heinemann, V. 39, 54, 61
Hempstead, B. L. 150
Henderson, P. J. F. 248
Henry, Y. 138
Hepler, J. R. 165
Herget, T. 149
Hernandéz-Sotomayor, S. M. 165
Hers, H. G. 97, 98, 100
Hershko, A. 173
Hertel, L. W. 39, 54, 61
Heyworth, P. G. 222
Hickson, I. 116
Hickson, I. D. 21
Higgins, N. 117
Higgins, P. J. 267, 268, 276
Hilton, J. 19–26
Hinds, M. 114, 118, 119
Hinkula, J. 29
Hirsch, A. 257, 260
Hirsch, M. 27, 33
Hittelman, W. 117
Hod, Y. 103
Hodnick, W. F. 3
Hoemann, C. D. 274
Hoffman, R. D. 41, 290
Hofmann, G. 117
Hofsteenge, J. 146
Hohler, W. 131
Hokin, L. E. 299–312
Hokin, M. R. 299–301
Holbrook, N. J. 269
Holdridge, C. 236, 240
Holliss, D. J. 232
Holm, C. 123
Holness, M. J. 71–95
Holtzclaw, W. D. 281, 282, 285–287, 291, 292
Honchar, M. P. 304
Hong, S. O. 175
Hood, L. E. 200
Hooper, S. 129
Horecker, B. L. 103
Horikawa, I. 267
Horikoshi, J. 267
Houslay, M. D. 146
Housman, D. 113
Howard, D. K. 46
Howard, R. M. 71–95
Howell, S. B. 235
Howie, K. B. 291
Hoy, C. 3
Hsien, T. -S. 117

Hszieh, R. 138
Huang, A. T. 28, 32
Huang, K. P. 165, 166
Huang, P. 54
Huang, S. L. 131
Huang, T. M. 202
Hubbard, W. C. 190
Huber, M. 181–184, 186–190, 192
Hue, L. 97–110
Huebner, K. 114, 117
Hughes, C. S. 3, 5, 9, 10, 13
Hui, A. C. 236, 247, 248
Humphrey, S. M. 232
Hunkapiller, M. W. 200
Hunkeler, M. J. 282, 283
Hunt, D. F. 207, 213
Hunter, T. 24, 144, 150, 166, 262
Hurlbert, R. B. 129
Hurley, M. C. 61
Huskisson, N. S. 158
Hutchinson, W. L. 221–226, 232
Hyndman, D. J. 197, 204

Iamotti, A. M. 148
Ichihara, A. 173–180
Ichikawa, S. 40, 56
Igarashi, K. 176
Ii, K. 174, 175
Ikai, M. 174
Ikawa, Y. 267, 268
Ikegami, T. 53
Inamura, N. 174, 176
Inglese, J. 210
Ingwall, J. S. 232
Inui, T. 3
Ip, N. Y. 144, 145, 146
Iracki, T. 3, 10
Irvin, C. G. 13
Irvine, R. F. 157, 158, 161, 165, 299, 301
Isacke, C. M. 150
Ishii, T. 284, 285
Issad, T. 72, 81
Issinger, O. G. 147
Itarte, E. 147
Iten, E. 269, 272
Ives, D. H. 41, 61, 66
Iwahana, H. 114, 119
Iwanaga, S. 173
Iyer, J. 269, 272

Jackson, G. 27, 30
Jackson, R. C. 40–44, 54, 66
Jaiswal, A. K. 290
Jaken, S. 164
Jakobs, E. S. 236
Janowska-Wieczorek, A. 243
Jansen, R. 118, 119
Jarvis, S. M. 235, 236, 238, 240, 248
Jaskiewicz, J. A. 255, 256
Jayaraj, A. 235
Jayaram, H. N. 41, 42, 54, 235
Jedlitschky, G. 181–194
Jequier, E. 88
Jett, M. F. 98
Joenje, H. 113
Johnson II, E. E. 61–68
Johnson, N. D. 200
Johnson, R. 117
Johnson, V. 33
Jones, A. E. 86
Jones, B. S. 72, 77, 86
Jones, J. 116
Jongsma, A. 113
Jongstra-Bilen, J. 123

Kadonaga, J. T. 65
Kador, P. F. 197
Kagan, H. M. 276, 277
Kagawa, S. 173, 174, 176
Kahl, R. 283
Kakizuka, A. 174
Kameji, T. 176
Kanayama, H. 174, 176
Kanazawa, H. 114, 119
Kande, J. 72, 81
Kaneko, M. 267
Kang, G. J. 244
Kang, S. S. 175
Kantarjian, H. 55
Kapeller, R. 150
Kaplan, D. R. 150
Kapoor, R. 117
Karin, M. 166
Karvounis, N. 235
Kase, B. F. 190
Kästner, S. 181, 190
Katabami, M. 268, 274
Katsube, Y. 174
Katz, J. 83
Kaufmann, S. H. 19, 24
Kawahara, A. 150
Kawahara, H. 176
Kawamura, Y. 173
Keating, M. J. 55
Kedishvili, N. Y. 255–265
Keehan, M. 149
Kellam, P. 27
Kelley, M. 5, 6
Kelley, R. I. 183, 189
Kemp, S. 27, 30
Kennedy, E. D. 303, 305, 310

Kennedy, E. P. 301
Kennedy, K. A. 3, 10, 11
Kensler, T. W. 283, 284
Kenyon, K. 268, 276, 277
Keppler, D. 181–194
Kerbey, A. L. 86, 87
Kerr, L. A. 282
Kerrigan, D. 123
Keyes, S. R. 3–13
Khan, K. 261
Khoury, G. 268
Khwaja, T. A. 131, 137
Kijimoto-Ochiai, S. 268
Kikkawa, U. 301
Kim, J. W. 165
Kim, M. 61
Kim. R. 113–127
Kim. S. H. 164
Kim, U. H. 164–166
Kim, Y. K. 66
Kimball, A. P. 244
King, D. 27
King, M. E. 235
Kinoshita, J. H. 197
Kiriyama, Y. 235
Kirk, C. J. 299, 301
Kirschner, M. W. 176
Kishimoto, A. 301
Kitayama, H. 267, 268
Kitoh, T. 235
Kizaki, H. 43
Klaassen, C. D. 283, 284
Klarlund, J. K. 147
Kleihues, P. 119
Klein, U. 175
Klemenz, R. 267–280
Klenz, E. M. 287
Kloetzel, P. M. 175
Knickelbein, R. G. 236
Knight, C. 117
Knutsen, T. 114, 117
Ko, F. J. 255
Kobayashi, N. 150
Koeller, J. M. 235
Kohn, K. W. 5, 24
Kohno, K. 118, 120
Komiyama, T. 3
Kon, H. 13
Koneru, P. B. 129, 137
Kono, T. 150
Korecky, B. 222, 232
Koshida, R. 28, 29
Kosmidis, P. 235
Koster, J. G. 173
Koszalka, G. W. 28, 32, 61
Kouyama, H. 210
Krans, H. M. 197
Krebs, E. G. 145–148
Kreis, W. 41
Krenitsky, T. A. 61
Krieg, J. 146
Kroin, J. S. 54
Kroll, D. 117
Kroos, M. 210
Krzyzosiak, W. J. 268, 274, 276
Kubiseski, T. J. 197–206
Kubota, M. 235
Kufe, D. W. 61
Kumar, S. 13
Kumatori, A. 174, 176
Kuntz, M. J. 256, 261, 262
Kusano, K. 143, 151
Kuwajima, M. 81
Kuwano, M. 118, 120
Kuzumaki, N. 267, 268, 274
Kwak, K. B. 175
Kwong, F. Y. P. 248

Lacreta, F. P. 21
Laemmle, U. 117, 257
Lai, M. M. C. 131, 137
Lam, L. K. T. 282
Lamb, N. J. C. 148
Land, S. 27
Lane, D. J. 308
Lane, M. A. 267
Lane, M. D. 290
Lange, A. J. 103
Lankinen, H. 129
Lapis, E. 41
Larder, B. 27, 30
Laskin, O. 27
Lau, K. S. 255
Lavoinne, A. 75, 146
Lawler, A. 207
Lawson, R. 224
Lazarow, P. 189
Lazo, J. S. 3
Le Hir, M. 236, 240, 248
Leader, D. P. 84, 146
Leatherman, G. F. 73
Lebeau, E. 100, 101
Leblanc, J. 123
Lecaer, J. P. 207, 208, 213
Lechene, C. 277
Ledley, F. 118, 119
Lee, A. S. 66
Lee, C. H. 303, 304, 306–308
Lee, C. W. 236, 247
Lee, F. Y. 23
Lee, K. Y. 163
Lee, M. D. 104

Lee, M. K. 207, 213
Lee, M. S. 118
Lee, S. Y. 158, 163, 164, 308
Leeb-Lundberg, L. M. F. 151
Leedom, J. 27
Leevers, S. J. 146
Legg, A. 103
Lehmann, W. 151, 152
Lehmann, W. D. 181–183, 186–190, 192
Leier, I. 181–184, 186–190, 192
Leis, S. 235
Lemaire, G. 138
Lengyel, P. 267
Lepoivre, M. 138
Lerman, S. A. 288
Letts, G. 181
Leturque, A. 72, 78, 81
Levantis, P. 30
Levin, S. T. 150
LeVine, H., III 117
Lewis, A. D. 21
Li, X. 27
Li, Y. 290
Lien, E. J. 129, 131, 137, 138
Liepnieks, J. J. 54
Lin, A. J. 3
Lindgren, J. A. 181
Ling, V. 3
Liotta, L. A. 212, 268
Lipman, D. J. 257, 275
Lipman, R. 3, 5, 9, 10, 13
Lisek, C. A. 21, 23
Litchfield, D. W. 146
Little, J. 123
Liu, F. 98
Liu, L. 114, 117, 123
Liu, T. L. 81–84, 89, 90
Liu, Y. L. 87
Lively, M. O. 100
Ljungdahl-Ståhle, E. 27–36
Lock, R. 123
Loiseau, A. M. 102
Londos, C. 235
Long, C. S. 79
Longo, D. L. 24
Look, K. Y. 39–59
Loomis, R. 4–6, 12
Lopex Del Pino, V. 236
Lopresti, M. B. 199
Lorico, A. 116
Los, G. V. 303–308
Lown, J. W. 13
Lowry, O. H. 197
Loyd, A. C. 146
Ludeman, S. M. 19, 14
Lui, M. S. 40, 43, 45, 46, 54, 235
Lyons, C. 198, 204
MacArthur, L. 277
MacCallum, S. H. 299
Machesky, L. M. 165
MacLennan, P. A. 72, 73, 79, 83–87
Maclouf, J. 181
Magahara, H. 267
Magill, G. B. 235
Maisin, L. 79, 104, 105
Majerus, P. W. 163, 299
Majmudar, G. 274
Mak, T. W. 46
Makabe, O. 267
Makran-Tonakis, P. 235
Maller, J. L. 144, 146
Manaitis, T. 115
Mancuso, A. L. 131
Mangum, M. 212
Maniatis, T. 63, 257, 269
Mann, D. M. 277
Mann, E. 143, 151
Mannaerts, G. P. 73, 190
Mannervik, B. 21
Mansell, M. M. 130
Mansuy, D. 138
Manzoli, F. A. 157–169
Maraldi, N. M. 157–169
Marchand, M. J. 103–105
Marchington, D. R. 86
Marchisio, M. 167
Marina, N. M. 235–252
Marinetti, G. V. 300
Marini, G. 235
Markman, M. 235
Marpicati, P. 235
Marquez, C. 104
Marshak, D. R. 147
Marshall, C. J. 146
Marshall, R. S. 10, 11
Marshall, V. P. 255
Martelli, A. M. 157–169
Martin, Jr, D. W. 129
Martin, J. 27
Martin-Sanz, P. M. 102, 104
Martin-Zanca, D. 150
Martz, F. 282, 283
Maruyama, K. 269
Mato, J. M. 104
Matsufuji, S. 176
Matsumoto, M. 129, 137
Matsumoto, T. 174, 176
Matsuzaki, T. 267, 268
Mattern, M. 116, 117
Mayatepek, E. 181–194
Mayes, J. 114, 118, 119
Mazzoni, M. 166, 167
Mazzotti, G. 157–169
McBride, K. 164

McElvany, K. D. 202
McGarry, J. D. 73, 77, 79, 81, 83
McGready, M. L. 267
McGuinness, B. F. 10
McGuire, J. J. 207, 208, 210, 211, 213
McLellan, L. I. 282
McPhee, D. 27
Meacci, E. 104
Meier, J. M. 77
Meijer, L. 146
Meister, A. 284
Meldrum, E. 150
Melvin, W. T. 46
Mercado, C. M. 10
Merlevede, W. 143–155
Merrill, D. 33
Michel, A. 100
Michell, R. H. 167, 299, 301
Mikawa, H. 235
Milani, D. 167
Mildvan, D. 27
Milic, M. R. 72, 74, 76, 77, 82, 84, 85
Millar, J. B. A. 149, 150
Miller, W. 257
Mills, S. E. 79
Mimnaugh, E. G. 3
Mineishi, S. 39, 61
Minna, J. D. 130
Minna, Y. D. 143
Mirabelli, C. 117
Miralpeix, M. 102
Misner, J. W. 54
Mitchell, B. S. 61–68
Mitsuya, H. 27
Miyaji, H. 174, 176
Moccio, D. M. 240, 242
Moeri, R. 88
Moffatt, B. A. 257
Mojena, M. 102–106
Montaner, J. 27
Montgomery, J. A. 61
Montini, E. 235
Moody, T. W. 143
Moore, D. D. 291
Moore, E. C. 129, 137, 138
Moore, K. P. 181, 184
Moorji, A. 236
Moran, R. G. 207
Moras, D. 198, 204
Mordoh, J. 235
Morgan, H. E. 232
Morgenbesser, S. D. 144–146
Mori, T. 301
Morimoto, Y. 174
Moritz, A. 300
Morjana, N. A. 197, 198, 204
Morris, M. A. 104, 105
Morris, P. G. 221–226
Morrow, J. F. 282
Morton, M. R. 290, 291
Moser, A. E. 190
Moser, H. W. 189, 190
Moulder, J. F. 3
Moummi, C. 303, 304, 306–308
Mowbray, J. 221–234
Msisenhelder, J. 150
Muckenthaler, M. 30
Muggia, F. M. 235
Müllauer, L. 267, 268, 274
Müller, J. 181–184, 186–190, 192
Muller, M. 114
Müller, M. 181–183, 186–190, 192
Mullin, W. J. 287
Mulshine, Y. 143
Munday, M. R. 71–95
Munro, J. B. 129, 146
Munsell, L. Y. 304
Munstermann, U. 147
Murakami, Y. 176
Muramatsu, M. 21
Murat, J. C. 102–104
Murphy, R. C. 181–183, 190
Murray, A. W. 176
Murthy, S. 235
Muschel, R. J. 268
Muzik, H. 235
Mvumbi, L. 83
Myers, E. W. 257
Myers, M. B. 41
Mylonacis, N. 235

Nagahara, H. 267
Nagai, M. 40, 56
Nahorski, S. R. 303, 305, 310
Nakagawa, K. 21
Nakai, T. 174
Nakajima, K. 268, 274, 276
Nakamura, H. 53, 56
Nakanishi, K. 10
Nakanishi, S. 174
Nakielny, S. 75
Naldini, L. 150, 151
Nanaumi, N. 255, 256
Narayanan, A. 129–140
Natsumeda, Y. 40, 41, 53, 54, 56, 235
Naubauer, R. H. 63
Neff, T. 117
Nelson, J. A. 235
Nembrot, M. 235
Neri, L. M. 158, 165–167
Newcomb, E. 119
Newgard, C. B. 83
Newsholme, E. A. 79, 83

Ng, C. Y. C. 236, 240, 244–246, 248
Ng, S. 118
Ng, W. G. 260
Nicotera, P. 166
Nieting, L. 235
Nieuwint, A. 113
Nievers, M. 167
Niles, R. M. 267
Nilsonn-Ehle, P. 72
Nilsson, T. 166
Nimec, Z. 207–218
Ninfa, A. J. 262
Nirkko, A. C. 269, 272
Nishibe, S. 165
Nishigai, M. 174
Nishimura, S. 267, 268, 274, 276
Nishizawa, M. 176
Nishizuka, Y. 299, 301
Niu, W. L. 260
Noda, M. 267, 268, 272
Noe, D. A. 21
Noel, L. D. 235, 236, 240, 244–248
Nonomura, Y. 268
Norman, J. 166
Northwood, I. G. 145
Nowak, B. 39, 61
Nusinoff Lehrman, S. 27
Nye, S. H. 144–146
Nyhan, W. L. 255

O'Connor, B. M. 207–218
O'Shaugnessy, M. 27
Oates, J. A. 190
Öberg, B. 28, 29
Octave, J. N. 100, 105
Oda, A. 267, 268
Ogiso, Y. 267, 268
Ognibene, A. 157, 158, 165
Ogura, T. 174–176
Ohgaki, H. 119
Ohlsson, E. 29
Oizumi, J. 260
Okada, F. 174, 176
Okamoto, A. 119
Okayama, H. 277
Okazaki, K. 176
Oki, T. 3
Olah, E. 43, 45, 46, 54, 56
Olive, P. 121
Oliver, A. R. 147
Olsen, D. J. 308
Olson, J. 10
Omata-Yamada, T. 267
Onetti, R. 104
Ono, M. 118, 120
Orino, E. 174–176
Orita, M. 114, 119
Orlowski, M. 173, 174
Ornberg, R. 173
Örning, L. 181
Orrenius, S. 166
Osheroff, N. 117
Oshimura, M. 267
Ott, R. J. 236
Otway, S. 81
Ou, S. Y. L. 282–284
Oude Elferink, R. P. 210
Owens, J. K. 65
Oxford, J. 30

Pace, N. R. 308
Paff, M. 117
Pajor, A. M. 248
Paker, E. 114
Palazzi, M. 235
Pallante, S. L. 21, 23
Palmer, T. N. 72, 73, 83–87
Pamukcu, R. 235
Pan, S. 3, 10, 11, 13
Panayotatos, N. 144–146
Panella, T. J. 28, 32
Papa, S. 165
Parada, L. F. 150
Paris, H. 102, 103
Park, D. J. 164
Parker, P. J. 150
Parmentier, G. 190
Parniak, M. 27
Parr, R. 117
Paspatis, A. 235
Passonneau, J. V. 197
Patel, B. 221–234
Paterson, A. R. P. 235, 236, 238, 244, 248
Pawlak, J. 10
Paxton, R. 255, 256, 261
Payrastre, B. 167
Pearson, W. R. 275, 282
Pedersen, J. I. 190
Peebles, C. 117
Pegoraro, L. 46
Pekala, P. H. 104
Pelech, S. L. 146
Penefsky, S. H. 199
Penicaud, L. 72, 78, 81
Per, S. 117
Pereira, D. 63
Perez, M. 147
Perlmutter, R. M. 150
Perrett, D. 221, 232
Peterkofsky, B. 274
Petro, B. J. 19

Petzold, S. 123
Pfizenmaier, K. 267
Phelps, D. A. 235–252
Phelps, D. T. 284
Pickett, C. B. 290, 291
Pilkis, J. 100
Pilkis, S. J. 97–100, 103
Pillwein, K. 41, 42, 235
Pines, J. 24
Pinna, L. A. 147
Piper, J. R. 211
Piper, P. J. 181, 191
Pipino, G. 235
Piro, L. D. 61
Plagemann, P. G. W. 235, 236, 238, 240, 248
Plummer, J. L. 284
Plunkett, W. 39, 54, 55, 61
Podjarny, A. 198, 204
Pollard, T. D. 165
Pollit, R. J. 255
Polomski, L. 3
Pommier, Y. 123
Poore, G. A. 54
Popov, K. M. 255–265
Posner, G. H. 282
Powell, S. M. 256
Powis, G. 3
Pozzatti, R. 268
Prajda, N. 39–59
Prence, E. M. 212
Prestera, T. 281–296
Preusch, P. C. 3
Previati, M. 166
Price, D. J. 146
Priest, D. G. 211, 212
Pritsos, C. A. 3, 4, 6, 12, 13
Prochaska, H. J. 282, 284–287
Proctor, S. J. 21
Puchalski, R. B. 21
Pujades, A. 102
Pupons, A. 208
Purifoy, D. 30
Putney, C. G. 204

Quade, K. 269, 271
Quinn, A. M. 262
Quiocho, F. A. 198, 204

Raber, N. K. 129–140
Rabideau, D. A. 148
Racker, E. 97, 308
Radcliffe, A. 114
Raden, D. L. 145
Radziejewska, E. 144–146
Raff, E. C. 308
Raff, R. A. 308
Rajagopalan, S. 13
Rana, R. S. 299, 301, 302
Randle, P. J. 72–75, 77, 79, 83, 86, 87, 255, 256, 261
Ranhosky, A. 235
Rapp, S. 181
Rappa, G. 116
Ratcliffe, P. J. 224
Rauth, A. M. 10, 11
Reardon, M. A. 53, 235
Reddel, R. 212
Reichard, P. 129
Reichert, G. H. 147
Reichman, M. 303, 304, 306–308
Reinacher, M. 98
Reinhart, J. 282
Remick, S. C. 235
Reuser, A. J. 210
Reymann, J. M. 198, 204
Rhee, M. S. 208
Rhee, S. G. 158, 163–166, 308
Rice, G. C. 3
Richman, D. 27, 30
Rideout, J. L. 61
Rider, M. H. 79, 97–100, 102, 105, 106
Riedel, N. 166
Riethorst, A. 113
Rimoldi, D. 268, 276, 277
Rinzel, M. S. 54
Riordan, J. F. 202
Ritke, M. 115, 123
Rivett, A. J. 173, 174
Rizzoli, R. 157, 165
Robbins, B. 255–265
Robbins, D. J. 144–146
Roberts, J. D. 129, 137
Roberts, R. M. 212
Robinson, D. S. 81
Robison Jr, W. G. 197
Robson, C. 116
Robson, C. N. 21
Rock, K. L. 173
Rock, M. K. 197
Rockwell, S. 3–17
Rodriguez-Pena, M. 148, 149
Roebuck, B. D. 283, 284
Rokach, J. 181
Rondeau, J. M. 198, 204
Rooke, R. 27
Rosen, O. M. 257, 260
Rosowsky, A. 207
Ross, D. A. 3, 40–44, 54, 66
Ross, W. 115, 123
Rossier, J. 207, 208, 213
Rossino, P. 150, 151

Rotundo, R. 207–218
Rougraff, P. M. 255, 256, 259, 260
Rousseau, G. G. 97–110
Rowe, M. E. 291
Rowe, P. B. 212
Rowe, T. 114, 117
Roy, C. 123
Rozengurt, E. 103, 148–152
Rubin, C. S. 257, 260
Rubins, J. B. 166
Rubio, R. 232
Ruedy, J. 27
Ruley, H. E. 269
Ruoslahti, E. 277
Rushmore, T. H. 290, 291
Russell, F. A. 130
Ryan, M. P. 267, 268, 276
Ryu, S. H. 158, 163–166, 308

Sacchi, N. 269
Safa, M. 113, 114, 115
Saffiotti, U. 268
Sagata, N. 176
Sage, H. 274, 277
Sager, R. 267
Saggerson, E. D. 79
Saggioro, D. 147
Sahagian, G. G. 212
Sahyoun, N. 117
Saijo, N. 21
Sakal, M. 21
Sakata, J. 100
Sakurai, T. 268
Sala, A. 181
Salmon, D. S. 267
Sambrook J. 63, 115, 257, 269
Sameshima, Y. 119
Samhoun, M. N. 181, 191
Samid, D. 267
Samuels, L. L. 211
Samuelsson B. 181
Sander, M. 117
Sanders, L. E. 255
Santamaria, A. B. 285, 286
Santi, P. 166
Sarno, S. 144, 146–148
Sartorelli, A. C. 3–17, 116, 138, 236, 247
Sata, T. 80, 81
Sato, A. 129
Sato, C. 267
Sato, H. 284, 285
Sato, K. 21
Sato, M. 174
Satoh, M. 174, 176
Saton, S. 174, 176
Schäffer, R. 267–280
Scheffer, G. 113
Schein, P. 116
Schelling, D. 84
Schepers, L. 190
Scherrer, K. 173, 175
Schimke, R. T. 3
Schirch, V. 207
Schlessinger, J. 143, 150, 151
Schmidt, C. 113, 114, 116
Schmidt, S. 114, 122
Schmitt, B. 123
Schneider, H. R. 147
Schneider, J. A. 103
Schneller, S. W. 129–140
Schnipper, L. 118
Schotz, M. 72
Schulz, D W. 197
Schulz, I. 301
Schulz, R. J. 5
Schuster-Bruce, M. J. L. 83
Schutgens, R. B. H. 183, 189, 190
Schutz, Y. 88
Schwarte-Waldhoff, I. 272
Schwartz, M. A. 277
Schwenk, M. 236
Scolnick, E. M. 267, 272
Sebolt, J. 40
Sefton, B. M. 144
Seitz, G. 147
Sekiya, T. 114, 119
Seldon, R. F. 291
Seliger, B. 267
Selinger, Z. 267, 272
Sen, A. 39, 54, 61
Serafin, W. E. 190
Seydel, U. 166
Shabanowitz, J. 207, 213
Shahbaz, M. 204
Shak, S. 181
Shane, B. 207
Shapira, H. 143, 151
Sharma, N. 222, 232
Sharples, S. C. 73
Sherman, W. R. 302, 304
Shewach, D. S. 61–63, 65
Shikama, H. 83
Shimbara, N. 173–180
Shimomura, Y. 255–265
Shimotakahara, S. 10
Shin, S. 174, 176
Shindo-Okada, N. 267, 268, 274, 276
Shirley, M. A. 181, 182
Shono, M. 175, 176
Sie, K. 114
Siegel, D. 3

Sies, H. 284
Sikorska, M. 123
Silberman, L. 114
Silink, M. 212
Sim, A. T. R. 77
Simon, K. 235
Simoncini, E. 235
Sinclair, G. 63
Singh, I. 190
Singh, M. 103
Singh, V. N. 103
Singhal, R. L. 39–59
Sinha, B. K. 13
Sinnet-Smith, J. 143, 148, 149, 151, 152
Sirotnak, F. M. 211, 212, 240, 242
Sisk, S. C. 282
Slade, D. 117
Slattery, T. 143, 151
Sligar, S. G. 3, 10, 11
Slowiaczek, P. 235
Smallwood-Kentro, S. 115
Smart, T. B. 235
Smeal, T. 166
Smith, B. R. 284
Smith, C. 123
Smith, D. M. 78, 89
Smith, H. W. 290
Smith, K. A. 148, 149
Smith, M. T. 21
Smith, P. B. 19, 22, 23
Smith, R. 255
Smith-Nanni, C. 117
Smrcka, A. V. 165
Sobrino, F. 104
Sokatch, J. R. 255
Sokoloski, J. A. 236, 247
Sols, A. 102, 103
Soltoff, S. 150
Sommercorn, J. 147
Sone, S. 174–176
Song, J. J. 61–69
Song, X. H. 151
Sood, A. K. 63
Soudeyns, H. 27
Spandidos, D. A. 267
Sparnins, V. L. 282
Spector, D. L. 147
Spector, R. 236
Spector, T. 226
Spencer, S. R. 281–296
Sprague, G. F. 146
Spriggs, D. R. 61
Spychala, J. 63
St Clair, M. H. 27, 28, 32
Stalmans, W. 83
Stanbridge, E. J. 267
Stec, J. 166
Steeper, J. R. 130
Stene, D. O. 181, 183
Sternweis, P. C. 165
Steuart, C. D. 130
Stevnsner, T. 116
Stewart, M. A. 302, 304
Stock, A. M. 262
Stock, J. B. 262
Stockstad, E. L. R. 207
Stoddart, J. H. 267
Stone, K. L. 199
Stotz, E. 300
Streb, H. 301
Striblin, D. 197
Strijland, A. 210
Strong, W. B. 207
Stroobant, P. 149
Studier, F. W. 257
Sturgill, T. W. 144, 146, 147
Subar, M. 235
Sugden, M. C. 71–95
Sugimoto, Y. 267, 268
Sugino, A. 117
Sugita, Y. 284
Suh, P. G. 158, 163, 164, 308
Sullivan, D. 115
Sullivan, W. P. 148
Sundqvist, V. A. 29
Surya, I. 210
Susa, M. 147
Suttle, D. 113–116, 118, 119
Suzukaka, D. 19
Suzuki, H. 267, 268, 274
Suzuki, M. 255, 256
Sweetman, L. 255
Swern, D. J. 131
Sylvia, V. 166
Szekeres, T. 39–59
Szentivanyi, A. 282, 284
Szondy, S. 53

Tachikawa, T. 174, 176
Taetle, R. 235
Tager, J. M. 183, 210
Taguchi, S. 210
Tahir, M. K. 21
Tai, A. W. 129, 131, 137
Takabayashi, Y. 73
Takagi, T. 174
Takai, Y. 301
Takano, H. 118, 120
Takashina, M. 175, 176
Takeda, E. 40, 43, 45, 56
Taketani, S. 284, 285
Takhar, S. 72, 74, 76, 77, 82, 84, 85

Takimoto, T. 235
Talalay, P. 28, 29, 281–296
Talbot, N. 267
Talmadge, J. E. 268
Tamura, T. 173–176, 184
Tan, K. 116, 117
Tan, M. H. 80, 81
Tanahashi, N. 174
Tanaka, K. 173–180
Tang, A. 129, 137, 138
Tang, J. 276, 277
Tang, X. 161
Taniguchi, T. 150
Taniki, T. 235
Tanizawa, A. 235
Tarassoff, P. 55
Tattersall, M. H. 235
Taylor, D. J. 104, 105
Taylor, G. W. 181, 184
Teicher, B. A. 3
Temler, E. 88
Tenu, J. P. 138
Terada, M. 21, 119
Terashima, Y. 119
Terjung, R. L. 222
Teshima, H. 268, 274, 276
Teshima, S. I. 119
Testar, X. 103, 104
Tête-Favier, F. 198, 204
Tew, K. D. 21
Tewey, K. 114, 117
Thampy, K. G. 85
Thelander, L. 129, 138
Thomas, G. 146, 147
Thomas, G. M. H. 166
Thomas, S. M. 146
Thomas, W. E. 226
Thompson, C. B. 63
Thompson, R. 61
Thompson, T. N. 283, 284
Thorgiersson, U. P. 212, 268
Thorne-Tjomsland, G. 161
Tibbs, G. R. 221, 222, 224
Tichauer, Y. 290, 291
Tihan, T. 39
Tijan, R. 65
Tischler, M. E. 261, 262
Tobian, J. A. 173
Todd, G. C. 54
Toft, D. A. 148
Tokunaga, F. 173
Tomasz, M. 3–17
Tombes, M. B. 235
Tonks, N. K. 144, 146, 165
Tormey, D. C. 235
Tourkantonis, A. 235
Trackman, P. C. 276, 277
Traub, O. 267, 269, 271
Treloar, G. 27
Tremblay, M. 27
Trent, J. 113–115
Tricot, G. J. 41
Trivedi, D. 123
Trocheris, V. 104
Troen, B. R. 268
Trump, D. L. 235
Trush, M. A. 3
Tsai-Pflugfelder, M. 114, 117
Tsavaris, N. 235
Tsavdaridis, D. 235
Tse, C. M. 248
Tsikas, D. 183, 189, 190
Tsoukas, C. 27
Tsuchida, S. 21
Tsukitani, Y. 146
Tsunokawa, Y. 21
Tucker, R. W. 161
Tudor-Williams, G. 27
Tullson, P. C. 222
Turka, L. A. 63
Turpeenniemi-Hujanen, T. 268
Tustin, J. M. 54
Tutsch, K. D. 235
Tuttle, J. V. 61
Tzeng, D. Y. 43, 45, 46

Uchida, Y. 118, 120
Ugai, S. 174
Ui, M. 83
Ullman, B. 65
Ulrich, A. 143, 150, 151
Ungemach, F. R. 235
Uyeda, K. 100

Valentine, B. 123
Valilis, P. 235
Vamecq, J. 190
Van Bergen En Henegouwen, P. M. P. 167
Van Dekerckhove, J. 100
Van Den Bosch, H. 183
Van Der Bliek, A. 113
Van Lint, J. 143–155
Van Schaftingen, E. 97–100
Van Veldhoven, P. P. 190
Van-Groenigen, M. 113
Vandamme, J. 100, 105
Vandenheede, J. R. 143–155
Vanderkerckhove, J. 100, 105
Vannini, F. 104
Varela, I. 104
Vary, T. C. 74, 77

Vasta, V. 103, 104
Vavro, C. 27
Veilette, A. 150
Veiro, D. 10
Verdine, G. L. 10
Verkleij, A. J. 167
Veronee, C. D. 212
Vertommen, D. 100
Vidal, H. 100
Videler, J. 33
Vidgen, D. 235
Vignon, F. 212
Vijayalakshmi, D. 235, 236, 239, 240, 241, 247, 248
Vine, W. 104
Vistica, D. T. 19
Vitale, M. 165
Vives-Corrons, J. L. 102, 104
Voegtlin, C. 290
Voelkel, N. 181
Volberding, P. 27
Völkl, A. 181–184, 186–190, 192
Volonte', C. 308
Vosberg, H. P. 123
Vrang, L. 28, 29, 32
Vyas, D. M. 5, 6

Wadler, S. 235
Wahl, M. I. 165, 166
Wahren, B. 27–36
Wainberg, M. 23, 27
Wakabayashi-Ito, N. 267
Wakelam, M. J. O. 146
Wakil, S. J. 85
Walker, B. 123
Walker, P. 123
Walker, S. 63
Walker, V. 10
Wallace, G. C. 138
Wallstrom, B. 46, 66
Wan, C. W. 46
Wanders, R. J. A. 183, 189, 190
Wang, J. 114, 117–119, 123
Wang, P. H. 129, 137
Wang, Y. 207–218
Warmoth, M. 114, 115, 119
Warnick, C. T. 235
Wartmann, M. 145
Watanabe, N. 176
Waterfield, M. D. 149
Watkins, J. B. 283, 284
Watt, P. 75
Wattenberg, L. W. 282
Waxman, L. 174, 175
Way, Y. M. 143, 151
Weber, G. 39–59, 66, 235
Weckbecker, A. 129, 137
Weich, J. 235
Weiel, J. E. 145, 146, 148
Weiner, R. S. 209
Weinhouse, S. 97, 102
Weissman, S. M. 63
Westin, E. H. 268
Westmacott, D. 104, 105
Whang-Peng, J. 114, 117
White, G. A. 24
White, J. C. 61
Whitehead, R. J. 104, 105
Whitfield, J. 123
Whitlock, D. M. 222
Wiernik, P. H. 235
Wiestler, O. 119
Wiggins, D. 73
Wilczak, C. A. 281–296
Willecke, K. 267, 269, 271
Williams, J. E. 268
Williams, K. R. 199
Williams, R. 181, 184
Williams, T. C. 236, 240, 248
Williamson, D. H. 77
Willson, J. K. 235
Wilson, D. K. 198, 204
Windle, J. J. 282
Winhold, K. J. 27
Wirtz, K. W. 300
Woffendin, C. 236, 240, 248
Wohlhueter, R. M. 235, 236, 238, 248
Wolf, C. R. 21
Wolf, M. 117
Wolff, J. 255
Wolverton, J. S. 113–127
Wong, H. 5, 6
Wood, A. J. 302
Woodgett, J. R. 166
Woolley, D. E. 104, 105
Worland, S. 119
Worrall, E. B. 83
Wright, E. M. 248
Wu, J. 147
Wu, X. 236, 247, 248
Wu, Y. M. 143, 151

Xu, Y. Z. 54
Xue, L. 287

Yago, N. 210
Yalowich, J. 113–115, 123, 207
Yamada, H. 267
Yamada, Y. 41, 119
Yamaguchi, K. 174
Yamaguchi, Y. 277

Yamaji, Y. 41
Yanagihara, K. 267
Yancopoulos, G. D. 144–146
Yang, C. H. 240, 242
Yang, L. 114
Yao, W. J. 27
Yao, X. 27
Yapo, A. 138
Yasargil, M. 119
Yasuda, H. 175, 176
Yeaman, S. J. 72, 77, 86
Yeh, A. 39–59
Yiping, L. 147
Yokosawa, H. 176
Yokota, J. 21, 119
York, J. L. 282
Yoshimura, T. 173–176, 184
Youndale, T. 123
Young, B. 235
Young, J. D. 235, 238, 248
Yu, I. J. 147
Yuan, G. 236, 247, 248
Yuan, Z. M. 19, 22, 23

Zachary, I. 148, 149, 151, 152
Zamanis, N. 235
Zammit, V. A. 84, 86
Zaniboni, A. 235
Zarbl, H. 274
Zasloff, M. 173
Zentella, A. 104
Zhang, B. 256
Zhang, Y. 281–296
Zhao, Y. 255–265
Zinelis, A. 235
Zini, N. 165
Zisiadis, A. 235
Zwelling, L. 5, 114, 115, 118, 119

SUBJECT INDEX

Acetylcholine (ACh)
on Ins(1,4,5)P_3 formation in monkey brain 306
on phospholipid metabolism in pancreas 300
Acetyl-CoA carboxylase (ACC; EC 6.4.1.2)
assay 72
down-regulation after prolonged starvation 77, 78
hepatic activities during starvation 75–77
hepatic activities on refeeding 84, 85
phosphorylation site 77
regulation 75, 76
α-*N*-Acetylglucosaminidase (EC 3.2.1.50) activity, check on cellular integrity 210, 211
Acquired immunodeficiency syndrome (AIDS), problems of single drug therapy 27
Actinomycin
in determination of CdR kinase half-life 49, 51
inhibition of CdR kinase induction 47–49
on enzyme activities in hepatoma 51–53
Acyl-CoA oxidase (EC 1.3.99.3) in β-oxidation of fatty acids 182, 183
Adenine nucleotides
control of 221–233
high energy tetraphosphate 221
sources in rat heart 222
Adenine phosphoribosyltransferase (APRT; EC 2.4.2.7) half-life in hepatoma
actinomycin on 51–53
cyclophosphamide on 49–51
Adenosine in heart muscle oPG-ATP as possible store 232
Adenosyl-3′3 phosphoglyceric acid (A3′3pGri) and ester, identification with oPG-ATP species 223, 224
ADP reductase inhibition by HAG derivatives 132, 133, 137
Aldehyde dehydrogenases (EC 1.2.1.3)
evolutionary relationships calculations 258
relationship to methylmalonate semialdehyde dehydrogenase 258–260
Aldose reductase (ALR2; EC 1.1.1.21)
coenzyme binding on chemical modification 197–205
in diabetic complications 197
inhibitors in diabetes clinical trials 197
NADPH complex isomerization 197
phenylglyoxal modified 198
arginine locations 203–205
peptides of trypsin digest
identification 201–203
purification and isolation 199
sequencing 200
protection with coenzyme 200–205
reaction kinetics 200, 202, 204
steady state activity assay 198
Amino acid (branched chain) catabolism 255
p-Aminobenzoylpoly-γ-glutamate conjugate immunogen 208
competitive inhibitors in ELISA 214, 216
chain length on reactivity 215, 216
polyclonal antiserum 209
γ-Glu_5-generated antibodies 213, 214, 216
AMP-activated protein kinase (AMP-PK; EC 2.7.1.109)
activation during starvation 74, 77
activities during refeeding 85
phosphorylation of ACC 77
cAMP in mitogenesis 149
cAMP dependent-protein kinase (cAMP-PK; EC 2.7.1.37)
activation during starvation 74, 78
activities during refeeding 84
in glycogen turnover changes 73
inactivation of PPIG 74
PFK-2/FBPase-2 substrate 99, 100
Antifolates
enzymatic glutamate addition to 207
possible DFDC combination therapy 56
Antioxidant Responsive Element (ARE) enhancer sequences in rat genes 290, 291
Ara-C (cytosine arabinoside)
activation by CdR kinase 39, 61
possible DFDC combination therapy 56
Arginine residues
essential in ALR2 for activity 198
active sites 204, 205

specific reagent phenylglyoxal 198, 202
Arsenicals, induction of quinone reductase 288, 289
Artemia (brine shrimp) PLC isoforms 308, 309
ATP
/ADP ratio, possible role of oPG-ATP in maintenance 232
as negative effector of PFK-1 97, 98
ATP-citrate lyase (EC 4.1.3.8) in hepatic lipogenesis 87
3′-Azido-3′-deoxythymidine (AZT)
combination chemotherapy options 28, 56
on viral RT gene 29, 30
resistance of HIV 27, 28, 33
susceptibility of HIV isolates 30
synergy limitations 33, 34
with ddI 31, 32, 34
with FLT 31, 33, 34
Aziridinium intermediates in glutathione-alkylating agent reactions 20–23, 25
NMR detection of 21

Benzylidene-HAG
inhibition of ribonucleotide reductase activities 131, 133, 136
on L1210 cell growth 134–136
structure 132
4-Benzyloxybenzylidene-HAG
on ribonucleotide reductase activity 136
structure 132
Bipolar disorder, Li^+ treatment 302, 309
BMY-6783 (MC analog)
on EMT6 cell survival 6
DNA cross-linking correlation 12
structure 4
BMY-25282 (MC analog)
on EMT6 cell survival 6
DNA cross-linking correlation 12
structure 4
BMY-43324 (MC analog)
on EMT6 cell survival 6
DNA cross-linking correlation 12
structure 4
Bombesin
induced protein phosphorylations 143–152
on tyrosine phosphorylation 150–152
range of actions of 143
signal receptor 143, 150, 151
stimulated kinases MBP/MAP2 144
stimulated kinases, Mono Q chromatography of 145
stimulation of CK-2 148
stimulation of S_6 kinases 146, 147
Bovine heart PFK-2/FBPase-2 isozyme (H) 100
amino acid sequence 101
Branched-chain α-ketoacid dehydrogenase kinase (EC 2.7.1.115)
acute regulation by α-ketoisocaproate 255
amino acid sequence analysis 256, 261–263
cDNA 261, 263
expression in *E. coli* 257
molecular cloning 256, 261
molecular weight 261
Northern blot analysis 257, 261
purification 256
reactions catalysed 255, 261
relationship with other protein kinases 261–263
prokaryote histidine kinases 262, 263
pyruvate dehydrogenase kinase 263
Bromobenzene on Phase 2 enzyme activities 283, 286
2(3)-*tert*-Butyl-4-hydroxyanisole (BHA)
active metabolite from 282
anticarcinogenic mechanisms 282
on GSH levels 284
on Phase 2 enzymes 283, 284

c-*jun*
activation by topo-II inhibitors 123
regulation in at-MDR 116
Cadmium induction of quinone reductase 289, 290
Calpain proteolysis of nuclear PICβ 164
Carbamoyl-phosphate synthase II (EC 6.3.5.5) activities in liver and hepatoma 41
Carcinogenesis, proteasome expression change in 176
Carnitine palmitoyl transferase (CPTI; EC 2.3.1.21)
cardiac activity during starvation 79, 80
hepatic activity during starvation 75, 77
inhibition by malonyl-CoA 73, 79
Casein kinase 2 (CK-2)
bombesin stimulation 148, 152
properties 147
substrates 144, 147
CDP reductase inhibition by HAG derivatives 131–134, 136, 137
CdR kinase *see* Deoxycytidine kinase
Cell
differentiation, proteasome activity and 177
morphology, control in normal and transformed cells 277

Chemoprotection, stimulation of Phase 2 enzymes by electrophiles 291, 293
Chemotherapy
agents phosphorylated by deoxycytidine kinase 61
AZT combinations 56
AZT limitations against HIV 27
effect on drug susceptibility 30
combination against HIV 27–35
AZT, FLT and ddI pairs 31–35
synergy considerations 33
design, *de novo* synthesis and salvage paths 39, 40
drug resistance and topo II 113–123
clinical aspects of at-MDR 120–122
enzyme half-life considerations 53
mitomycin antibiotics 13
nucleoside transport in normal and neoplastic cells 235–248
exploitation of differences 247, 248
ribonucleotide reductase inhibitors 129–139
tiazofurin, DFDC combination 54, 55
Chlorambucil–glutathione conjugation 19
GSH transferase isozyme in 21
2-Chlorodeoxyadenosine
phosphorylation by deoxycytidine kinase 61
toxicity in mouse cells, NBMPR on 244
Citrate synthase (EC 4.11.3.7) as mitochondrial marker for PDH 72
dCK *see* Deoxycytidine kinase
Clofibrate-induced peroxisome proliferation, leukotriene degradation after 185, 192
Collagen
gene expression in normal and revertant cells 274–276
production regulation in revertant cells 268, 277
Cycloheximide
in determination of enzyme half-lives 48–51
inhibition of CdR kinase induction 47–49
4-Cyclohexylmethoxybenzylidene-HAG
on ribonucleotide reductase activity 136
structure 132
Cyclohexylmethylene-HAG
on L1210 cell growth 136, 139
on ribonucleotide reductase activities 132, 133, 136, 139
structure 132
Cyclophosphamide glutathione conjugation 19
alternative mechanisms for 22
with activated forms 23, 24
Cystine transport enhancement by electrophiles 284, 285
Cytochrome-*c* oxidase (EC 1.9.3.1) in rat liver peroxisomes 184
Cytochrome P-450-related functions, monofunctional inducers on 283
Cytosine arabinoside *see* Ara-C

Dedifferentiation in hepatoma cells, glycolysis and 102
Deoxycytidine
administration on CdR kinase activity 47
CdR kinase affinity, DFDC on 56
concentration in rat hepatoma, liver and plasma 42
incorporation, variation with growth phase 45
Deoxycytidine kinase (CdR kinase, dCK; EC 2.7.1.74)
activity
in liver and hepatoma 41
in T and B lymphoblasts 64–66
in various cell lines 42, 43
increase with hepatoma growth rate 44
increase with progression 40–44, 57
increase with transformation 40–44, 57
inhibition by DFDC 53–57
in various cells 55
steroids on 48, 49, 57
variation with cell growth phase 43, 45, 46, 57
half-life, actinomycin on 51–53, 57
half-life, cycloheximide on 48–51, 57
hormonal regulation in rat liver 48, 57
human enzyme purification 61
human gene clones
coding region 63
intron–exon boundaries 62, 63, 65
isolation 61, 62
promoter regions 65, 66
5′-regulatory region 62, 63
schematic representation 62, 63
transfection experiments 63–65
in salvage pathway 40
induction in rat liver 47
nutritional regulation in rat liver 47, 48, 57
reactions catalyzed by 61
regulation 39–57
at gene level 66, 67
of human 61–67
mRNA 49, 51, 53
levels, cell proliferation and 65–67

DFDC (difluorodeoxycytidine, Gemcitabine)
activation by CdR kinase 39, 54
blood levels in patients 55
induced differentiation 54
inhibition of CdR kinase activity 53–57
metabolites 54
on dCTP concentration 54, 55
possible AZT combination chemotherapy 56
possible combination with *de novo* pathway inhibitors 56
structure 54
synergistic action with tiazofurin 54, 55
Diabetes mellitus complications, significance of ALR2 in 197
Diacylglycerol (DAG)
in neurotransmitter interaction 299–302
nuclear concentration and inositol phosphate metabolism 158, 161
Dicumarol (DIC) on mitomycins cytotoxicity 10–14
Dideoxycytidine (ddC) as anti-HIV agent 27
2′,3′-Dideoxyinosine (ddI)
as anti-HIV agent 27
susceptibility of HIV isolates 30
conditions for synergy 32, 33
with AZT 31–34
with FLT 31, 32
Dideoxynucleosides as anti-HIV drugs 27
2,4-Dienoyl-CoA reductase (EC 1.3.1.34) in β-oxidation of fatty acids 182, 183
cosubstrate NADPH 187
2′,2-Difluorodeoxycytidine phosphorylation by deoxycytidine kinase 61
Dihydrofolate reductase (EC 1.5.1.3) activity, check on cellular integrity 210, 211
Diphenols induction of quinone reductase 285
Dipyridamole
inhibition of nucleoside transport 235, 236, 240, 245, 246
possible combination chemotherapy 247
1,2-Dithiole-3-thione
on liver GSH levels 284
on Phase 2 enzymes 283, 284
DNA adducts with mitomycins 5, 9–13
effect of dicumarol 10, 12
effects of oxygen 10–12
DNA gyrase, bacterial equivalent of topo II, novobiocin binding 117
DNA interstrand cross links with mitomycins 9–12
cell survival correlation 12, 13
DNA polymerase (EC 2.7.7.7) inhibition by DFDC 54, 55
DNA topoisomerase II (topo II; EC 5.99.1.3)
altered topo II
biochemical differences 116
distribution 119, 121
drug resistance and 113–123
isozymes, chromosomal origins 117
multidrug resistant (at-MDR) phenotype features 113, 115, 116
nuclear matrix component 117
as substrate for kinases 117
complex formation
assay 114, 121
diminution in at-MDR cells 120
in sensitive and resistant cells verapamil and VM-26 on 121, 122
VM-26 induction of 119
immunohistochemical staining 114
inhibitors, mode of action 123
Northern blot analysis 115
phosphorylation 117
single strand conformational polymorphism (SSCP) analyses 114, 118
Western blot analysis 114
cDNA of 208F cells
expressed sequence tags 272–274
collagen genes 274–276
revertant-specific library construction 272, 273
cDNA of PLC genetic expression 309
DT-diaphorase *see* NAD(P)H quinone oxidoreductase

Electrophile counterattack response 281–293
families of agents eliciting 293
molecular regulation 290–293
Electrophile Responsive Element (EpRE) enhancer sequences in mouse genes 290, 291
Electrophiles
metabolic responses to 281
on intracellular GSH 284, 285
Enoyl-CoA hydratase (EC 4.2.1.17) in β-oxidation of fatty acids 182, 183
Δ^3,Δ^2-Enoyl-CoA isomerase (EC 5.3.3.8) in β-oxidation of fatty acids 182, 183
Enzyme-linked immunosorbant assay (ELISA)
antipeptide antisera/BSA-γ-Glu_5 reactivity 213, 214
competitive inhibitors 214
chain length on 215, 216
protocols 209

Epidermal growth factor (EGF)
receptor affinity, bombesin on 149
tyrosine kinase receptor 143, 150, 151
Epoxide hydrolase induction by
BHA 282, 283
bromobenzene 283, 284
1,2-dithiole-3-thione 283, 284
Escherichia coli branched-chain α-ketoacid dehydrogenase kinase expression 257, 261
Extracellular
matrix components expression in reversion process 277, 278
signal related kinases (ERKs) properties of 144–146

Fatty acid MPCA on PDHa activity 82
Fibroblast growth factor (FGF) mitogenic action on 3T3 cells 143, 152
Fibroblasts, glycolysis stimulation by various agents 103–105
Fludarabine phosphorylation by deoxycytidine kinase 61
3′-Fluoro-3′-deoxythymidine (FLT)
as anti-HIV agent 28
susceptibility of HIV isolates 30
conditions for synergy 32, 33
with AZT 31, 34
with ddI 31, 32, 34
5-Fluorouracil (5-FU) possible DFDC combination therapy 56
Folic acid
coenzymes structure 207
from $PteGlu_5$ hydrolysis by γ-glutamyl hydrolase 212, 216
Folylpolyglutamate
cleavage prior to absorption 208
hydrolysis to folate by γ-glutamyl hydrolase 212, 216
Formycin B transport in
human Caco-2 cells 245, 246
mouse cells 241
Fructose 1,6-bisphosphatase (EC 3.1.3.11)
in gluconeogenic tissues 98
inhibition by fructose 2,6-bisphosphate 97, 98
Fructose 2,6-bisphosphatase (FBPase-2; EC 3.1.3.46)
activity, absence in hepatoma cells 102
bifunctionality with PFK-2 99
Fructose 1,6-bisphosphate affinity of PFK-1 98
Fructose 2,6-bisphosphate
as marker in cancer cells 105
biosynthesis and degradation 98, 99
control of glycolysis and 97–106
second messenger 103–105
hydrolysis in liver 99
in rat heart on refeeding 87
in tumor cells 101, 102
stimulation of PFK-1 98
synthesis, inhibition by 6-mercaptopurine 105, 106
targets of 97

G peptide
elution profile 145
substrate 144
G-protein-linked neuropeptide receptors, bombesin action through 143
β-Galactosidase (EC 3.2.1.33) activity, check on cellular integrity 210, 211
Gene expression
alteration in neoplastic transformation and phenotypic reversion 267
collagen, down regulation in *ras*-transformed cells 274, 275
differential, identification strategy 273
proteasome induction and 173
Glucose metabolism
conversion to glycogen 88
regulation 71–91
regulatory importance of specific enzymes 91
uptake in heart and muscle 78, 87–90
γ-Glutamyl hydrolase (EC 3.4.22.12)
activity in H35 cells and conditioned medium 210
activity in various cell extracts and conditioned medium 211
assay 208
cleavage of poly-γ-glutamate 213
endopeptidase evidence 212, 216
lysosomal site 207
properties and function 207–216
$PteGlu_5$ hydrolysis 212, 216
secretion 211
possible function of 212, 213
Glutathione
cellular depletion with buthionine sulfoximine 24
in cellular drug resistance 19–25
intracellular levels BHA on 284
reaction with
cyclophosphamide 22–24
mechlorethamine 20, 21
melphalan 20, 21
phosphoramide mustard 23
structure 19
Glutathione transferases (GSH transferase, GST; EC 2.5.1.18)
activity and alkylating agent resistance 21, 25
isozymes involved 21, 23

induction
by BHA 282, 283
by bromobenzene 283, 284
by 1,2-dithiole-3-thione 283, 284
structure–activity studies 285
Ya genes, enhancer sequences 290–293
Glycogen
concentration during progressive starvation 73
concentration during refeeding 83, 84, 87, 90
synthesis control by GS 83
Glycogen phosphorylase (EC 2.4.1.1)
studies of glycogen turnover changes 73
Glycogen synthase (GS; EC 2.4.1.11)
control by PPIG 74
glucose on activation 83, 84
studies of glycogen turnover changes 73
Glycogenesis
during progressive starvation 73
during refeeding 84
Glycolysis
control 97–106
factors stimulating 103–105
rate in tumors 97, 101–103, 106
GMP reductase (EC 1.6.6.8) half-life in hepatoma
actinomycin on 51–53
cycloheximide on 49–51
GMP synthase (EC 6.3.4.1) half-life in hepatoma
actinomycin on 51–53
cycloheximide on 49–51
Growth factors
on fructose 2,6-bisphosphate in various cells 104
on PFK-2 activity 104, 105
GS.1 peptide kinase
elution profile 145
substrate 144
Guanine phosphoribosyltransferase (GPRT; EC 2.4.2.8) half-life in hepatoma
actinomycin on 51–53
cycloheximide on 49–51
Guinea pig brain cortex slices, inositol phosphates accumulation in 303, 304, 310

HAG *see* *N*-Hydroxy-*N'*-aminoguanidine
Histidine protein kinases, homologies with α-ketoacid dehydrogenase kinase 262
Human
choriocarcinoma JAR cells, γ-glutamyl hydrolase activity in 211
colon CdR kinase activities 42
colon carcinoma CdR kinase activity increase 40, 42
colon carcinoma Caco-2 cells, nucleoside transporters in 237, 238
Na^+-dependent of formycin B and TdR 245, 246
colon carcinoma GC_3/Cl cells, nucleoside transporters in 237
colon carcinoma HCT-8 cells, nucleoside transporters in 237
colon carcinoma HT-29 cells
CdR kinase activity 42
fructose 2,6-bisphosphate in 102
colon carcinoma VRC_5/Cl cells, nucleoside transporters in 237
growth hormone expression, correlation with QR stimulation 291, 292
HeLa cells
fructose 2,6-bisphosphate in 102
γ-glutamyl hydrolase activity 211
hepatoma Hep-G2 cells, γ-glutamyl hydrolase activity in 211
immunodeficiency virus (HIV)
antiviral activity assay 28
combination chemotherapy 27–35
patterns and conditions for synergy 31–35
RT gene sequences 29, 30
leukemia CCRF-CEM cells
at-MDR phenotype 115
DNA–topo II complex formation 122
γ-glutamyl hydrolase activity 211
MTX toxicity NBMPR on TdR reversal 239
nucleoside transporters in 237, 247
NBMPR on 237
temperature sensitivity 120
tubercidin toxicity NBMPR on 238
leukemia CCRF-HSB2 cells nucleoside transporters in 237
leukemia CEM/VM-1 cells
DNA–topo II complex formation 122
SSCPs in 119
temperature sensitivity 120
teniposide resistance 114
topo II mutation 118
leukemia CEM/VM-1-5 cells
DNA–topo II complex formation 122
temperature sensitivity 120
teniposide resistance 114
topo IIα mutation 118
topo IIβ deficiency in 117
leukemia HL-60 cells
at-MDR phenotype
SSCPs 119
topo IIs 116–118
CdR kinase activity 42, 43

increase in log phase 45
inhibition by DFDC 54–56
nucleoside transporters in 237, 238, 247
leukemia K562 cells
CdR kinase activity 42, 43
γ-glutamyl hydrolase activity 211
leukemia NALM cell lines, nucleoside transporters in 237, 238
leukemia Reh cells nucleoside transporters in 237, 238
leukemia U937 cells nucleoside transporters in 237, 238, 247
liver cancer proteasomes in 176
lymphoblasts, deoxycytidine kinase activities in T and B 64–66
lymphoma Raji cells nucleoside transporters in 237
mammary cancer MCF-7 cells, γ-glutamyl hydrolase activity 211
medulloblastoma cells, cyclophosphamide resistant
4-hydroperoxycyclophosphamide sensitivity and GSH 24
role of glutathione 24
ovarian carcinoma, CdR kinase activity 42
inhibition by DFDC 54–56
ovary, CdR kinase activity 42
OVCAR-5 cells, CdR kinase activity 42
increase in log phase 45
inhibition by DFDC 54–56
pancreatic carcinoma PANC-1 cells, CdR kinase activity 42, 43
increase in log phase 45
inhibition by DFDC 54–56
peroxisome deficiency disorders (Zellweger syndrome), impaired leukotriene degradation in patients 189–192
placenta cells 3 Sub E SV40-infected, γ-glutamyl hydrolase activity 211
renal cancer cells, proteasome expression and ubiquitin pathway in 177
rhabdomyosarcoma cell lines RD, Rh18, Rh28, Rh30 nucleoside transporters in 237, 247
small cell lung cancer (SCLC) growth factor bombesin 143
urine, leukotrienes extraction in Zellweger patients and controls 189, 190, 192
WI-L2 B-cells
nucleoside transporters in 237, 247
NBMPR on 237
TdR reversal of MTX toxicity, NBMPR on 239
tubercidin toxicity, NBMPR on 238
Hydroperoxides induction of quinone reductase 287
3-Hydroxy-acetyl-CoA dehydrogenase (EC 1.1.1.35) in β-oxidation of fatty acids 182, 183
N-Hydroxy-*N'*-aminoguanidine (HAG) derivatives (*see also* individual compounds)
as possible NO precursors 138
nature and orientation of rings on activity 137–139
on L1210 cell growth 134–137
on ribonucleotide reductase activities 131–134, 136, 137
structures 132
synthesis 131
inhibition of ribonucleotide reductase 129
Hydroxyurea (HU)
inhibition of ribonucleotide reductase 129
possible DFDC combination therapy 56
Hypoxia on
cytotoxicity of MC analogs 6
cytotoxicity of POR 5, 11
DNA alkylation damage 11
POR adducts with DNA 10, 11, 13
POR uptake and efflux 7, 8

IMP dehydrogenase (IMP DH; EC 1.1.1.205) half-life in hepatoma
actinomycin on 51–53
cycloheximide on 49–51
Inositol on inositol phosphates accumulation 303, 304
Inositol monophosphatases inhibition by Li^+ 302
Inositol phosphates
liberated by nuclear PIC 158, 159
regulation of nuclear functions and 166
Inositol 1,3,4,5-tetrakisphosphate ($Ins(1,3,4,5)P_4$)
accumulation in brain cortex, Li^+ on 302, 307
inositol on 303, 304
species differences 306, 307
Inositol 1,3,4-trisphosphate ($Ins(1,3,4)P_3$) accumulation in brain cortex, Li^+ and inositol on 303, 304
Inositol 1,4,5-trisphosphate ($Ins(1,4,5)P_3$)
accumulation in brain cortex 299–310
Li^+ on 302, 305, 308
ACh on 306
inositol on 303, 304
in release of cellular Ca^{2+} 299, 301, 302, 309, 310
receptor as target in Li^+ therapy 310

Insulin
-dependent pathways in hepatic glycogenesis 75, 84, 86
levels during starvation 74
on fructose 2,6-bisphosphate 104
on hepatic PDHa activity during starvation 74
on PFK-2 activity 104
potentiation of bombesin-induced mitogenesis 149
Insulin-like growth factor-1 (IGF-1)
on DAG level 161
on inositol phosphates 158
on nuclear PIC activity 161
on unresponsive 3T3 cell PIC activity 163, 165
stimulation, possible link to immediate-early genes 166
Isothiocyanates induction of quinone reductase 287

3-Ketoacyl-CoA thiolase (EC 2.3.1.16) in β-oxidation of fatty acids 182, 183

Lactate dehydrogenase (EC 1.1.1.27)
activity, check on cellular integrity 210, 211
Leucine catabolism, branched chain α-ketoacid dehydrogenase kinase regulation and 255
Leukotrienes
binding proteins in peroxisomal fractions 187–189
ω-COOH-LTB_4 degradation by isolated peroxisomes 187
ω-COOH-LTE_4NaAc degradation sequence 182
HPLC analysis 188
degradation in peroxisomal disorder patients 190
LTE_4 degradation, compartmentation of 191
β-oxidation
from ω-end 181, 187, 192
in peroxisomes 181, 191
products HPLC separation 184, 186, 188
photoaffinity labeling 187, 192
radioimmunoassays 185, 190
Lipid metabolism
hepatic, during starvation 71–78
regulatory enzymes 71
Lipogenesis, hepatic
during progressive starvation 73–78
on refeeding 86
Lipoprotein lipase (LPL; EC 3.1.1.34)
assay 72
cardiac activity during starvation 80, 81
cardiac activity on refeeding 88
skeletal muscle on refeeding 90, 91
Lithium
inhibition of phosphoinositide cascade steps 302
on inositol phosphates accumulation 303–305
NMDA receptor antagonists on 307, 308
species differences 306, 307
stimulation of PLC isoforms 308, 309
teratogenic activity 309
use in manic-depressive illness 302, 309
possible mechanism 303
LTE_4 20-mono-oxygenase (EC 1.14.13.14) in LTE_4 degradation pathway 191
Luciferase (EC 1.13.12.7) in oPG-ATP assay 229
Lysyl oxidase encoding of *rrg* 276

Malonyl-CoA inhibition of CPTI
in heart 79
in liver 73
Manic depression, therapeutic use of Li^+ 302, 303, 309
MBP-MAP2 kinases
bombesin stimulation 144
elution profile 145
properties 144
Mechloroethamine glutathione conjugate 19
azaridinium intermediate 21
reaction mechanism 20, 21
Melphalan monoglutathionyl conjugate
GSH transferase isozymes and 21
reaction mechanisms 20, 21
structure 19
Mercaptans induction of quinone reductase 288
6-Mercaptopurine inhibition of fructose 2,6-bisphosphate synthesis 105, 106
Mercury induction of quinone reductase 289, 290
Methotrexate (MTX) toxicity in human cells NBMPR on 239
Methylmalonate semialdehyde dehydrogenase (EC 1.2.1.27)
amino acid sequence analysis 256, 259
CoA dependency 260
cDNA 258, 263
expression on adipocyte differentiation 260, 261
molecular cloning 256, 258
molecular weight 258
Northern and Western blot analysis 257, 258

purification 256
reactions catalyzed 255, 263
relationship with other aldehyde dehydrogenases 258–260
tissue distribution in rat 258
5-Methylpyrazole 3-carboxylic acid (MPCA) regulation of skeletal muscle PDHa 82
Michael reaction acceptors induction of quinone reductase 286
Microtubule-associated protein-2 (MAP2) kinase *see* MBP-MAP2 kinases
Mitochondria
dehydrogenase kinases in 263, 264
on LTB_4 degradation 187
rat liver
oPG-3′ phosphodiesterase
intermembrane space location 228
molecular weight 231
purification 229, 230
subfractionation 226
Mitochondrial intermembrane space, location of oPG-ATP bound to phosphodiesterase 228, 230, 233
Mitogen stimulation
by IGF-I in 3T3 cells 165
PICβ activation and 166
Mitomycin antibiotics
mechanism of cytotoxicity 3–14
chemotherapy potential 13
DNA cross-linking and 12–14
effects of hypoxia 6, 10, 11
structures 4
Mitomycin C (MC)
activation 3
adducts with DNA 9
cross-linking 10, 12
on EMT-6 cells 6, 12
structure 4
Mitoplasts (intact inner membrane vesicles) from rat liver mitochondria 226
Monkey brain cerebral cortex slices
$Ins(1,4,5)P_3$ accumulation, Li^+ on 305, 308, 310
ACh on 306
$Ins(1,3,4,5)P_4$ accumulation Li^+ on 307
Monoclonal antibodies for PIC isozymes 163, 166
Mouse
bone marrow progenitor cells, NBMPR on
2-chlorodeoxyadenosine toxicity 244
TdR rescue after MTX 243
tubercidin toxicity 241, 242
brain cortex slices, inositol phosphates accumulation in 304, 310
Ehrlich ascites tumor cells, fructose 2,6-bisphosphate in 102
fibroblast 3T3 cells
expressed sequence tags 273
growth promoting agents on 149
isolated nuclei
inositol metabolism in 158
PIC activity 161
unreactive cells 163
removal of nuclear envelope 161
known sole mitogens 143
mitogenic action of bombesin in 143–152
ras recession gene expression in 268
fibroblast 3T3-L1 cells
culture 257
preadipocyte differentiation 260
methylmalonate semialdehyde dehydrogenase expression and 260, 261, 263
hepatoma Hepa 1c1c7 cells, induction of quinone reductase in 285–290
comparison with stimulation of transient gene expression 290–292
intestinal crypt cells, uridine uptake, Na^+ on 241, 242
intestinal epithelial cells
Na^+-dependent formycin B and TdR transport 241
uridine uptake, NBMPR on 240
leukemia L1210 cells
2-chlorodeoxyadenosine toxicity 244
growth
assay 130
inhibition by HAG derivatives 136
benzylidene-HAG 135
naphthylmethylene-HAGs 135
phenyl-HAGs 134
pyridyl-HAGs 135
leukemia P388 cells POR alkylation of DNA 11
liver enzymes, chemoprotectors on 283, 284
mammary carcinoma EMT6 cells
culture 4, 5
mitomycin antibiotics on 3–14
cell survival, aerobic and hypoxic 6
DNA cross-linking and 12–14
hypoxia on uptake and efflux 7, 8
poly-γ-glutamate antibodies 209
reactivities 213–215
Multidrug resistance (MDR)
at-MDR
clinical aspects 120
functional assays 121
phenotype
cell biology 119, 120

environmental stress response 120, 123
features 115, 116, 123
topo II
altered biochemistry 116–118
decrease and 113
distribution 119
topo IIα
chromosomal location 117
mutation in 118
SSCP analyses of 118, 119
topo IIβ deficiency in resistant cell lines 117
forms of 113
functional assay for subpopulations of tumor cells 121, 122
mdrl/Pgp gene overexpression 113, 121
Myelin basic protein kinases *see* MBP/MAP2 kinases

NADH cytochrome b5 reductase (EC 1.6.2.2) reduction of mitomycins 3
$NADP^+$ on ALR2 modification by phenylglyoxal 201–204
protection of arginine site 204
NADPH as coenzyme for ALR2 197–205
conformational change 204
protection against phenylglyoxal 200, 201
on arginine sites 204
NADPH cytochrome C reductase (EC 1.6.2.4) reduction of mitomycins 3
NADPH quinone oxidoreductase *see* Quinone reductase
Naphthylmethylene-HAG derivatives
inhibition of L1210 cell growth 135–137
1-Naphthylmethylene-HAG
inhibition of ribonucleotide reductase activity 132, 133, 136
on L1210 cell growth 135, 136
structure 132
2-Naphthylmethylene-HAG
inhibition of ribonucleotide reductase activity 132, 133, 136
on L1210 cell growth 135, 136
structure 132
Neoplastic transformation by *ras* oncogenes
phenotypic reversion 267
gene alterations and 268
resistance to 267
Neuropeptides range of functions 143
Nitrobenzylmercaptopurine riboside (nitrobenzylthioinosine, NBMPR)
inhibition of nucleoside transport 235
on TdR reversal of MTX toxicity
in human cells 239
in mouse cells 242
on tubercidin toxicity
in human cells 238
in mouse cells 242
on uridine transport
in human cells 236–238
in mouse epithelial cells 240
possible combination chemotherapy 247
sensitivities of equilibrative transports 235, 236
Nitrogen mustard alkylation, glutathione conjugates and 19–25
Nuclear
autonomous signalling system 165
lamina, PIC cycle and 166
Nucleoside transport
chemotherapy, phenotype requirement 248
equilibrative 236, 248
sensitivities to NBMPR 235, 236
in human cell lines 236–239, 244
in various cells 237
NBMPR on 237
salvage pathways 239
in mouse intestinal epithelial cells 239–241
Na^+-dependent formycin B and TdR 241
NBMPR and Na^+ on 240
in mouse bone-marrow progenitor cells 241–244
NBMPR on tubercidin toxicity 242
inhibitors on salvage pathways 235, 239, 243
multiple transporters 235
Na^+-dependent (concentrative) 235, 236, 243–248
formycin B and TdR 245, 246
other nucleosides on 246, 247
properties of the transporters (summary) 248
Nucleotide buffering, possible function of oPG-ATP 232

Oligophosphoglyceroyl-ATP (oPG-ATP)
cellular location 224
binding to enzyme in mitochondrial intermembrane space 228, 233
characterization 222–224, 232, 233
proposed structure 223
TCA/methanol insolubility 223, 232
distribution among organs 224
metabolism 227–231
enzymic cleavage 228, 229
possible function 231, 232

precipitation assay 225
preparation of [^{14}C] 224
stability, Mg^{2+} on 227
Oligophosphoglyceroyl-ATP (oPG-ATP) 3′ phosphodiesterase
alkaline treatment on activity 226, 229
FPLC fractions 230
mitochondrial, intermembrane space location 228
molecular weight 228, 231
purification 229, 230
reaction 228
subunit structure 231
Oncogenes (*see also* Gene)
activation of PFK-2 105
products as CK-2 substrates 147, 148
proteins, relation to PFK-2/FBPase-2 101
stimulation of glycolysis 105
Ornithine decarboxylase (EC 4.1.1.17) degradation by proteasome 176
Ouabain selection of revertant clones 269, 272

Palmitoyl transferase (CPT 1; EC 2.3.1.21) inhibition by malonyl-CoA in liver 73
PDH kinase (EC 2.7.1.99)
cardiac activity on refeeding 87
hepatic activity on refeeding 86
hepatic unregulation after prolonged starvation 77, 78
-PDHP phosphatase ratio, insulin on 75
PDHP phosphatase (EC 3.1.3.43) activity, insulin on 75, 86
Peroxisomal leukotriene degradation 181–192
enzymes of 182, 183
of ω-COOH-LTB_4 187–189
of ω-COOH-LTE_4NaAc, reaction sequence 182, 183, 188
of LTB_4 186
Phenylglyoxal
arginine specific reagent 198, 202
as ALR2 substrate 201
modification of ALR2 198, 199
peptide identification 201–203
reaction kinetics 200
Phenyl-HAG derivatives inhibition of L1210 cell growth 134, 136, 137
Phase 1 enzymes categorization 281
Phase 2 enzymes
BHA stimulation of 282
categorization 281
induction of 282–284
by arsenicals 288, 289
by diphenols, phenylenediamines and quinones 285, 286
by heavy metals 289, 290
by hydroperoxides 287
by isothiocyanates 287
by mercaptans 288
by Michael reaction acceptors 286
Phenylenediamines induction of quinone reductase 285, 286
2-Phenylethylidene-HAG
inhibition of ribonucleotide reductase activities 131–133, 136
on L1210 cell growth 134, 136
structure 132
3-Phenylpropylidene-HAG
inhibition of ribonucleotide reductase activities 131, 132, 136
on L1210 cell growth 134, 136
structure 132
Phorbol dibutyrate (phorbol ester, PDB) on fructose 2,6-bisphosphate 104
Phorbol 12-myristate 13-acetate (phorbol ester, PMA)
activation of PFK-2 103–105
on fructose 2,6-bisphosphate in various cells 103–105
Phosphatidic acid (PA) on PtdIns(4,5)P_2 regeneration 300
Phosphatidylinositol (PtdIns) turnover, increase on stimulation 300
Phosphatidylinositol 4,5-bisphosphate (PtdIns(4,5)P_2) regeneration 300
Phosphatidylinositol 4-phosphate (PtdIns(4)P) activation by PA 300
Phosphofructo-1-kinase (plant) (EC 2.7.1.90) stimulation by fructose 2,6-bisphosphate 98
6-Phosphofructo-1-kinase (PFK-1; EC 2.7.1.11)
inhibition in heart 79
isozymes 97
stimulation by fructose 2,6-bisphosphate 97
substrates 97, 98
6-Phosphofructo-2-kinase (PFK-2; EC 2.7.1.105)
activation by oncogenes 105
activation by PMA 103–105
bifunctionality with FBPase-2 99
formation of fructose 2,6-bisphosphate and 99
PFK-2/FBPase-2 system
dedifferentiation in HTC cells and 102
in tumor cells 102, 103
inhibitors and stimulants 99
isozymes 99–103
comparisons 100
genes 100, 101
similarity to oncogene proteins 101

substrate for cAMP-PK 99
Phosphoglyceric acid-ATP derivative, metabolism 221–233
Phosphoglycerol-ATP (PG-ATP) formation from oPG-ATP 228, 229
Phosphoinositidase C (PIC)
activity in isolated nuclei 158
assay in isolated nuclei and in cytoplasm 158, 160
Ca^{2+} on 158–161
cytoplasmic γ form 163, 164, 167
tyrosine phosphorylation regulation 165
G-protein regulation of ε isoform 166
inhibition by monoclonal antibodies β, γ and δ 163, 166
isozymes 158, 167
nuclear β form 157, 164, 167
activity after IGF-I treatment 161, 162
as target for PKC 165
Calpain inhibitors on activity 164
characterization 163
Phosphoinositides
cascade 302
in transmembrane signalling 299
historical survey 299–302
Phospholipase C (PLC; EC 3.1.4.3)
archetypal isoforms 308, 309
genetic expression 309
stimulation by Li^+ 308, 309
Phospholipids turnover stimulation in pancreas 300
Phosphonoformate (PFA) as anti-HIV drug 28
Phosphoramide mustard glutathione conjugation 19
alternative mechanisms for 22, 23
Platelet-derived growth factor (PDGF)
induced cAMP 149
mitogenic action on 3T3 cells 143, 152
tyrosine kinase receptor 143, 150, 151
Poly-γ-glutamate
antibodies preparation 208, 209
cleavage by γ-glutamyl hydrolase 213
properties and function 207–216
Polyphosphoinositide
in vitro synthesis 157
metabolism in nucleus 157
nuclear signalling system 166, 167
Porfiromycin (POR)
adducts with DNA 9
aerobic and hypoxic conditions 10, 11
[^{3}H] labeled 4, 5, 10, 11
on EMT6 cells
cross linking and 12
uptake and efflux, aerobic 7
uptake and efflux, hypoxic 8
structure 4
Prokaryote histidine protein kinases, relationship to branched-chain α-ketoacid dehydrogenase kinase 261–264
Proteasome
distribution 174
down-regulation and differentiation 176, 177
expression in carcinogenesis 176
expression in rat liver 175
functions 173
immunostaining 174
in cell-cycle regulation 176
Northern blot analysis 175
proteolytic activity 174
regulation 173–178
size and structure 174
subunits
change during development 175
origins and similarities 174
20S conversion to 26S 178
26S energy/ubiquitin dependence 177
Protein degradation mechanisms 173
Protein kinase A (PK-A) in mitogenesis 149
Protein kinase assays, synthetic peptide substrates 144
Protein kinase C (PKC; EC 2.7.1.37)
in bombesin-induced mitogenesis 148
interaction with PIC 165, 166
80K phosphoprotein substrate 149
mediation of PMA effects 103, 105
role in transmodulation 149
substrate PFK-2/FBPase-2 isozyme H 100
Protein phosphatase 1G (PP1G; EC 3.1.3.16)
activation by insulin 75
inactivation by cAMP-PK 73, 74
Protein tyrosine phosphorylation, growth factor signalling and 150
Proteolysis energy/ubiquitin dependent 173, 176
pSV2neo plasmid cotransfection of 208F cells 269, 271
Purine nucleotides, synchronous variation in perfused heart 221, 232
Pyridyl-HAG derivatives inhibition of L1210 cell growth 135–137
2-Pyridylmethylene-HAG
comparison with isoquinoline-HAG activity 137
inhibition of ribonucleotide reductase activity 134, 136
on L1210 cell growth 135, 136

structure 132
3-Pyridylmethylene-HAG
inhibition of ribonucleotide reductase activity 134, 136
on L1210 cell growth 135, 136
structure 132
4-Pyridylmethylene-HAG
inhibition of ribonucleotide reductase activity 134, 136
on L1210 cell growth 135, 136
structure 132
Pyruvate dehydrogenase complex (PDH; EC 1.2.4.1 + EC 1.6.4.3. + EC 2.3.1.2)
assay 72
cardiac activity
refeeding on 87
starvation on 79
hepatic activity
refeeding on 86
starvation on 73, 74
inactivation and reactivation 74, 75
skeletal muscle activity
refeeding on 91
starvation on 81–83

Quinone reductase (QR,NAD(P)H: (quinone acceptor)oxidoreductase, DT-diaphorase; EC 1.6.99.2)
induction by
BHA 282, 283
1,2-dithiole-3-thione 283, 284
electrophiles in mouse hepatoma cells 285
arsenicals 288, 289
comparison with growth hormone stimulation 291, 292
diphenols, phenylenediamines and quinones 285, 286
heavy metals 289, 290
hydroperoxides 287
isothiocyanates 287
mercaptans 288
Michael reaction acceptors 286
reduction activation of mitomycin antibiotics 3
Quinones induction of quinone reductase 285, 286

Rabbit poly-γ-glutamate antibodies 209
reactivities 213–215
ras-mediated transformation, suppression of 267–278
ras-recession gene (rrg)
in transformed 3T3 cell revertants 268
lysyl oxidase encoding 276

Rat
brain cortex slices, inositol phosphates accumulation in 303, 304, 310
embryo development proteasome expression and 175
F4 and F9 (revertant 208F) cells
matching of gene expression with original 208F cells 268, 273, 274
morphology 271
ouabain selection from FE-8 cells 269, 272
F7 and F10 (revertant 208F) cells
mRNA hybridization 274
selection with FUDR/araC 269, 272
FE-8 (transformed 208F) cells
collagen down-regulation 274
derivation from 208F cells 269
morphology 271
phenotype suppression 271, 272
revertant F9 cells from 268, 269
tumorigenicity 271
FE-56 (transformed 208F) cells
derivation from 208F cells 269
mRNA hybridization 269, 272, 274
fibroblast 208F cells
cotransfection with EJ*ras* oncogene/pSV2neo plasmid 269, 271
cDNA
library 272, 273
subtraction hybridization 269–274
synthesis 269
expressed sequence tags 272, 273
identification of differentially expressed genes 273
morphology 271
ras transformation to FE-8 cells 268, 269, 271
glioma LRM-55B cells, γ-glutamyl hydrolase activity 211
heart
metabolism during fed-to-starved transition
glucose uptake/phosphorylation 78
LPL activity 80, 81
PDHa activity 79, 80
TG concentrations 80
metabolism on refeeding
Fr 2,6-P_2 concentration 87
glucose uptake/phosphorylation 87
glycolysis 87
LPL activity 88
PDHa activity 87
TG concentrations 88
nucleotides fluctuation in perfused 221, 222
oPG-ATP in 221, 224
during ischemia 232

hepatocytes
γ-glutamyl hydrolase activity 211
isolation and incubation 184
leukotriene degradation in 185
in vivo clofibrate treatment on 185–187, 192
proteasome subunits in 176
hepatoma
3683, pyrimidine and DNA synthesis, enzyme activities 41
3924A
actinomycin on enzyme activities 49, 51–53
CdR kinase activity 42
half-life 48–53
inhibition by DFDC 54–56
cells
CdR kinase activity 42
variation with growth phase 43, 45
TdR kinase activity variation with growth phase 45, 46
cycloheximide on enzyme activities 49–51
deoxycytidine concentration 42
FT02B cells PFK-2/FBPase-2 103
H35 cells
culture 174
γ-glutamyl hydrolase activity 210
secretion from 210, 211, 216
proteasome subunits in 176
HTC cells
fructose 2,6-bisphosphate concentration 102
glycolysis in 102
PFK-2/FBPase-2 abnormality 102
hepatomas
CdR kinase activity increase 39, 40
of different growth rates, CdR kinase activities 44
kidney oPG-ATP in 221, 224
liver
CdR kinase activity 42
nutritional regulation on 47, 48
substrate induction 47
cell fractionation 225
deoxycytidine concentration 42
enzymes, chemoprotectors on 283, 284
metabolism during fed-to-starved transition 72
ACC activity 76
carbon flux 73
lipogenesis 73–78
PDHa activity 74, 75
PK activation and insulin concentrations 74
metabolism on refeeding 83
ACC activity 85
glycogen metabolism 84
lipogenesis 86, 87
PDHa activity 86
PDH kinase activity 86
PK activities 84, 85
mitochondria, subfractionation 226
oPG-ATP 221, 224
mitochondrial location 224
3′ phosphodiesterase from 229, 230
peroxisomes and mitochondria isolation 183
PFK-2/FBPase-2 isozyme L 99, 100
amino acid sequence 100, 101
proteasomes, developmental changes 175
pyrimidine and DNA biosynthesis, enzyme activities 41
methylmalonate semialdehyde dehydrogenase tissue distribution 258
muscle, CdR kinase activity 42
plasma deoxycytidine concentration 42
REF52 cells
expressed sequence tags 273, 274
ras transformation resistance 269
sarcoma CdR kinase activity 42
skeletal muscle
metabolism during fed-to-starved transition 78
glucose uptake/phosphorylation 78
PDHa activity 81, 83
MPCA on 82
metabolism during refeeding
glucose uptake/phosphorylation 88, 89
in non-working muscles 89, 90
LPL activities 90
PFK-2/FBPase-2 isozyme M 100
amino acid sequence 101
Reverse transcriptase, HIV (RT; EC 2.7.7.49)
gene sequencing 29, 30
inhibition by dideoxynucleoside drugs 27
mutation and drug resistance 33
Ribonucleotide reductase (EC 1.17.4.1)
activities in liver and hepatoma 41
assay 130
effects of HAG-derivatives on activity 131–134
possible mechanism 136, 137
table of 136
inhibition
by DFDC 54
by HAG-derivatives 129–139
in chemotherapy 39

Ribosomal protein S_6 kinases
bombesin stimulation 146, 147
elution profile 145
substrates 144
mRNA CdR kinase
constancy through cell cycle 65–67
half-life measurement using actinomycin 49, 51, 53

Salvage pathways in pyrimidine and DNA biosynthesis 40
Signal transduction in mitogenesis 143–152
Snake venom diesterase (EC 3.1.4.1)
in oPG-ATP assay 229
3′,5′ preference 223
Sulfhydryl reagents induction of quinone reductase 290

TdR kinase (thymidine kinase; EC 2.7.1.21)
activities in liver and hepatoma 41
cell growth-phase variation 45, 46
comparison with deoxycytidine kinase 66
half-life in hepatoma
actinomycin on 51–53
cycloheximide on 49–51
salvage role in chemotherapy 39, 40
Teniposide (VM-26)
induction of DNA–topo II complex 119, 122
resistant CEM cells 114
2-Tetradecylglycidate (TDG)
on cardiac PDHa activity during starvation 79, 80
on hepatic PDHa activity during starvation 74, 75
Thymidine (TdR)
kinase *see* TdR kinase
reversal of MTX toxicity
in human cells 239
in mouse cells 243
transport in mouse cells 241
Tiazofurin
on dGTP concentration 54
synergistic action with DFDC 54, 55
dTMP synthase (thymidylate synthase; EC 2.1.1.45)
activities in liver and hepatoma 41
half-life in hepatoma
actinomycin on 51–53
cycloheximide on 49–51
Topo II *see* DNA topoisomerase II
Triacylglycerol (TG)
from liver fatty acids 72, 73
plasma concentration
during starvation 80
on refeeding 88
Triamcinolone on CdR kinase of rat liver 48, 49
Tubercidin (7-deazoadenosine) toxicity
in human cells, NBMPR on 238
in mouse cells, NBMPR on 242
Tubulin
γ-glutamyl residues 207, 208
poly-γ-glutamylation 213
Tumor
cells
fructose 2,6-bisphosphate in 101–103
glycolytic rate in 97
possible role of fructose 2,6-bisphosphate 98
promoters stimulation of glycolysis 103–105
suppressor genes on morphological normalization of transformed cells 277
Tyrosine-specific protein kinase
activation of PFK-2 and 105
from retroviruses 103
receptor for mitogenic signals 143, 150–153

UDP-glucuronosyltransferase (EC 2.4.1.17)
induction by
BHA 282, 283
bromobenzene 283, 284
1,2-dithiole-3-thione 283, 284
Uridine-cytidine kinase (EC 2.7.1.48)
activities in liver and hepatoma 41
half-life in hepatoma
actinomycin on 51–53
cycloheximide on 49–51

Valine catabolism in adipose tissue 260, 261
Verapamil
modulation of Pgp 122
on DNA–topo II complex formation 122
VM-26 *see* Teniposide

Xanthine dehydrogenase (EC 1.2.1.37) activation reduction of mitomycins 3
Xanthine oxidase (EC 1.2.3.2) activation reduction of mitomycins 3

Zellweger (cerebrohepatorenal) syndrome 183, 189
Zinc induction of quinone reductase 289, 290